Jim Hatz & Associates

DWYERS AND OXFORD TAVERN DEVELOPMENTS

WOLLONGONG

ELECTRICAL AND COMMUNICATION SERVICES CONCEPT DESIGN REPORT

Prepared by:

Jim Hatz & Associates
Level 1
15 Atchison Street
ST LEONARDS NSW 2065

Tel: 9437 1000
Fax: 9437 1020

Prepared for:

Belmorgan Property Development
178 Shellharbour Rd
KEMBLAWARRA NSW 2505

Tel: 4274 1222
Fax: 4274 1444

A. GENERAL

This report describes the concept design of electrical and communication services associated with proposed Dwyers and Oxford Tavern developments.

The two developments are located in Wollongong on Burelli Street crn with Crown and Corrimal streets.
The two developments are of mixed usage including retail, office, residential, cinema and hotel areas. Each development has also multilevel underground carpark facilities.

This concept design is using as guideline specific Wollongong Council documents for new developments, as follows:

- Development Control Plan (DCP) for Mixed use developments
- Local Environmental control Plan (LEP)

Also the concept design is compliant with the following additional documents:

- Building Code of Australia
- Relevant Australian Standards

B. SERVICES.

1. Power supply to sites

Based on the preliminary maximum demand each development site will require a dedicated substation as follows:

- Dwyers Site – 4 x 1500 KVA transformers substation
- Oxford Site – 2 x 1500 KVA transformers substation

The proposed substations will be indoor type located away from general public access or development façades.

The incoming high voltage cables supplies (HV) will enter each development via underground ducts originating from HV sources as provided by Supply Authority.

Negotiation with local Supply Authority Integral Energy is currently underway for both sites.
Based on the agreed method of supply confirmed by Integral Energy a Level 3 services designer will then provide a detail power supply design in compliance with Supply Authority requirements.

Each substation will be designed to connect a number of main switchboards associated with different sections of the development, as follows:

- Retail areas – one main switchboard
- Commercial areas – one main switchboard
- Residential areas – one main switchboard
- House Services – one main switchboard

Main switchboard rooms have been located in close proximity of the substations. This arrangement will minimize cable runs and provide a sustainable design including limited voltage drop in lighting and power circuits.

This radial type power supply arrangement will achieve a better load distribution over each building section and will locally contain any faults at the switchboard where it occurs, without affecting switchboards serving other sections of the development.

Each main switchboard room will be provided with a power factor correction unit in order to increase the power factor to around 0.95 and higher which is more than the 0.90 standard requirement imposed by NSW Services and Installation Rules clause 1.9.10.

2. Communication Services

Telephones:

Preliminary telecommunication requirements have been submitted to Telstra for information.

Telstra will undertake an internal design and will provide a lead-in cable for each development with size and capacity to suit.

Each site will be provided with a main communication room. The room will generally be used to house the site main telephone frame (MDF), Telstra fibre network, racks, Foxtel / Optus Pay TV equipment (if supplied by underground cable).
The communication services will be then distributed on each building level via local telecommunications rooms/cupboards as required.

Data and High Speed Internet connection:

Data and high speed Internet connection services will be made available for each building.
will be available at each development.

In addition to the traditional data and telephony systems each developments will also be provided with advanced communication systems including a range of services such as Ethernet VLAN, Voice/Video over IP, IP Telephony, Dark Fibre, etc.

These optical networks will be specifically design to meet growing high data traffic needs of today's competitive business environment.

MATV/PAYTV services

Satellite dish and telecommunication antenna, for MATV/PAYTV services, will be integrated into the roof design of each building, according to DCP - Site Facility Requirements, in a position where will not become a feature at the top of the construction and reticulated throughout the developments.

3. Access, control and surveillance

Consistent with DCP requirements with regards to safety and security in public areas each site will be provided with following services:

Access control system:

Independent access control systems will be provided for each development in areas as follows:

- Basement levels carpark – boom gate system for retail section and intercom system for residents/visitors to resident section.
- Residential tower – intercom/access control system
- Commercial – card access system
- Retail – card/intercom access system.
- Hotel – smart card access system (will also interconnected with the lighting and power services within hotel rooms).

CCTV system:

A separate CCTV system will be provided to each site in compliance with the DCP requirements for safety and security. The system will cover all public areas such as:

- Carpark entrances and exits
- Lift lobbies
- Shopping arcades and other internal and external public spaces.

Each building will have a main security control room which will house and control all system head end equipment.

Public Area and Security Lighting

All public areas will be designed to achieve an enhanced level of lighting which will provide public safety and security.

The lighting systems for lobbies and all internal and external public areas will avoid creation of dark alcoves, will provide clear line of sights and well lit routes for public access.

C. ENVIRONMENTAL SUSTAINABLE DESIGN

The design will use innovative solutions which will increase the energy rating of the development and help reducing green house emissions. Some of the solutions are as follows:

- Introduction of bulk power factor correction. This will significantly reduce the energy consumption for each site by increasing the power usage and efficiency.

- Introduction of high efficiency fluorescent linear T5 and compact fluorescent lamps throughout the internal areas. Such lamps have an enhanced lumens output/Watt ratio. This will help reducing the total number of fixtures required throughout the project and it will also reduce the overall power consumption.

- External lighting will implement discharge lamps solutions, whith an enhanced lumens output efficiency for the same wattage as conventional sources.

- Introduction of electronic ballasts. Such ballasts have less heat losses than conventional iron core ballasts, lower power consumption and can increase the lamp life.

- Provision for emergency and evacuation lighting and fire detection system throughout the developments for increase safety and security.

- Use where appropriate light dimming and photo-cell control systems.

- Use of smaller motors with VRV where appropriate (inverter controlled variable speed system) or star delta start systems in lieu of high powered motors. This solution will increase power diversity, will eliminate spikes in the supply due to high inrush currents and provide a clean power network by maintaining a low level in energy consumption.

D. CONTROLS AND ENERGY SMART MANAGEMENT SYSTEMS

In additional to the above mentioned energy smart and efficient solutions the design approach for the two developments will also include for the introduction of smart building controls and energy management system.
These systems will provide a better and more efficient control for each section of the development including retail, residential, commercial, etc.

As a minimum the following will be provided:

- Internal and external lighting control via photoelectric cells and time switches to allow staged lighting control to suit individual area requirements.

- Internal and external lighting control systems including mixed movement sensors and time switches to control the use of lighting in low occupancy areas.

- Integration of lighting systems with access control and CCTV system.

- Use of lighting dimming and smart switching systems in large areas with natural lighting.

- Introduction of smart lighting control systems interconnected with other building management systems.