

Australia Habitat and Taronga Wildlife Retreat

Electrical Services Existing and Proposed Infrastructure Report

Taronga Zoo,
Mosman, NSW 2072

Revision: 02
Job No: 2098
Date: 4 March 2016

Contents

1.	INTRODUCTION	3
1.1	PURPOSE OF REPORT	3
1.2	EXISTING BUILDING AND ENGINEERING STATEMENT	3
2.	DESCRIPTION OF EXISTING ENGINEERING SERVICES.....	4
2.1	EXISTING ELECTRICAL SERVICES	4
2.2	EXISTING COMMUNICATION SERVICES	5
3.	DESCRIPTION OF PROPOSED ENGINEERING SERVICES	6
3.1	ELECTRICAL SERVICES	6
3.2	COMMUNICATION SERVICES	6

1. INTRODUCTION

1.1 Purpose of Report

ADP Consulting have been engaged to undertake a review of the existing electrical services infrastructure for the Taronga Centre at Taronga Zoo, and to identify the required infrastructure upgrades for the Australia Habitat and Taronga Wildlife Retreat.

The review was undertaken with reference to existing drawings and documents provided by Taronga Zoo, and a general site inspection undertaken on the 23rd May 2014 which included a general walkthrough of the Taronga Centre, including ground, first and second floors, as well as the surrounding and proposed development area.

This report assesses the current electrical services infrastructure and the suitability for this infrastructure to be retained, providing recommendations for any necessary upgrades to the existing Taronga Centre.

The comments in this report are made on the basis of visual examination conducted on Friday 23rd May and shall not be relied upon as providing any warranty of the services and equipment.

1.2 Existing Building and Engineering Statement

The existing Taronga Centre is 3 stories and incorporates office area, commercial kitchens, and function rooms. Ground floor is the lowest level of the project and houses the main entrance for the function rooms, commercial kitchens, and offices. Level 1 contains a function room and smaller associated kitchen and bar, as well as offices. Finally, Level 2 is predominantly a function room, small kitchen, and bar, occupying a smaller area than the lower floors.

The existing electrical services are in varying states, ranging from original equipment distribution boards within the Taronga Centre, to recent installations and upgrades such as the substation and back-up generator that supply the building and surrounding area.

It is intended that the existing services within the Taronga centre will be upgraded as part of the proposed master plan works.

2. DESCRIPTION OF EXISTING ENGINEERING SERVICES

2.1 EXISTING ELECTRICAL SERVICES

Taronga Zoo is a high voltage customer and the site is currently served by its' own 11kV ring mains. There are several substations located around the site and high voltage cabling is reticulated underground. Generators installed next to each substation provide back-up power in the event of any local network or supply authority failures.

The Taronga Centre is supplied via a low voltage feed from substation No. 5A to the main switchboard (MSB), which then reticulates out to various distribution boards throughout the centre.

From observation, the MSB has an 800A main switch, however, is fed from a circuit breaker with a maximum rating of 630A.

The existing electrical distribution boards within the Taronga Centre are of an age similar to the building itself, and visual inspection of the boards revealed them to be in generally poor condition. Distribution boards throughout the building were not equipped with RCD protection, and multiple surface mounted conduits ran between distribution boards and plant or outlets.



The substation and generator have been installed or upgraded within the last 5 years, and are of an excellent condition.



2.2 EXISTING COMMUNICATION SERVICES

The site is covered by an extensive fibre and telecommunications network, with a fibre optic building distributor (BD) and telecommunications intermediate distribution frame (IDF) located within the Taronga Centre. The telecommunications main distribution frame (MDF) is housed in the adjacent Admin building. Network units are installed in various locations throughout the centre with cabling reticulated generally in surface mounted conduits.



Telecoms equipment is in generally good condition and is monitored by Taronga Zoo IT Services.

3. DESCRIPTION OF PROPOSED ENGINEERING SERVICES

3.1 ELECTRICAL SERVICES

The existing low voltage supply would be retained to feed a new MSB located on the lower ground floor of the Restaurant Pod. This would re-feed the existing main switchboard in the Taronga Centre, along with rising submains reticulating up the building to common floor distribution boards and services switchboards, such as HVAC. Submains will also reticulate out to individual distribution boards in each Pod and the Guest Lodge.

Services would be metered with digital meters to separately monitor power, lighting, and HVAC energy usage and provide feedback via connection to the BMCS to allow Taronga Zoo to efficiently manage their electrical load and satisfy Green Star requirements.

New power, communications, lighting and security would be reticulated throughout the Restaurant Pod and Wildlife Retreat in accordance with the designation of the area and its' technical requirements.

Solar power photovoltaic cells are to be installed on suitable roof areas to supplement energy consumption and reduce carbon emissions of Taronga Zoo.

The existing substation and generator would be retained as is. There are no alterations required to the existing high voltage infrastructure.

3.2 COMMUNICATION SERVICES

It is recommended that the existing communications backbone infrastructure be retained as much as is practicable. New building distributor and local distributors would be required to reticulate data through the Restaurant Pod, the new Wildlife Retreat Pods, and Guest Lodge.