

AS 3000 - TABLE C3 VA per Square Meter
MAXIMUM DEMAND - NON-DOMESTIC ELECTRICAL INSTALLATIONS

Project: Blacktown Zoo
Project #: P15085
Created By: HD
Created on: 27/10/15

Building	Description	Area	VA/m2	Total VA	Amps/Phase	Comments
	1 Retail 1	332	150	49800	69.2	Lighting Power and A/C
	1 retail Store	104	150	15600	21.7	Lighting Power and A/C
	1 Amentias	194.5	80	15560	21.6	Lighting Power and A/C
	1 Entry Pay	201	120	24120	33.5	Lighting Power and A/C
	1 Group Pay	101	120	12120	16.8	Lighting Power and A/C
	1 Prayer Room	8.5	120	1020	1.4	Lighting Power and A/C
	2 Kitchen/Servery	285	600	171000	237.5	Lighting Power and A/C
	2 Eating and sitting	830	120	99600	138.3	Lighting Power and A/C
	2 Garbage	58	100	5800	8.1	Lighting Power and A/C
	2 Amentias	150	80	12000	16.7	Lighting Power and A/C
	2 Loading Dock	150	70	10500	14.6	Lighting Power and A/C
	2 Future Expansion	380	160	60800	84.4	Lighting Power and A/C
	3 Office/Admin	370	180	66600	92.5	Lighting Power and A/C
	3 Vet area	115	300	34500	47.9	Lighting Power and A/C
	3 Food Prep & Storage	270	180	48600	67.5	Lighting Power and A/C
Animal enclosures						
	Aquarium	450	250	112500	156.3	Lighting Power and A/C Tank Heating pumps
	Local Reptiles	450	120	54000	75.0	Lighting Power and A/C
	Koalas	100	120	12000	16.7	Lighting
	Nocturnal Exhibit	630	120	75600	105.0	Lighting power heating
	Meerkats	260	20	5200	7.2	Lighting
	Land Gorillas	1250	30	37500	52.1	lighting
	Dingoes	450	30	13500	18.8	lighting
	Echidna	50	60	3000	4.2	lighting
	Amentias	120	110	13200	18.3	Lighting Power
	Petting Zoo	400	30	12000	16.7	Lighting
	Arboreal Monkey	800	30	24000	33.3	Lighting
	crocodiles	600	80	48000	66.7	Lighting
	Chimpanzee	2000	40	80000	111.1	Lighting
	Elephants	4800	15	72000	100.0	Lighting
	Hamadryas Baboon	1500	30	45000	62.5	Lighting
	Tigers	1500	35	52500	72.9	Lighting
	Orang-Utans	450	50	22500	31.3	Lighting
	Sun-Bear	450	70	31500	43.8	Lighting
	Hippos	3200	80	256000	355.6	Lighting
	Show Arena	1250	40	50000	69.4	Lighting
	Kiosk	120	210	25200	35.0	Lighting Power and A/C
	Avery	1150	20	23000	31.9	Lighting
	Cheetahs	1500	35	52500	72.9	Lighting
	Lions	3450	30	103500	143.8	Lighting
	African Wild Dogs	1200	20	24000	33.3	Lighting
	Leopards	450	35	15750	21.9	Lighting
	African Grassland	7500	10	75000	104.2	Lighting
	Service Yard	2500	20	50000	69.4	Lighting and power
	Carpark	20000	10	200000	277.8	Lighting & CCTV
	Overflow Carpark	10000	10	100000	138.9	Lighting & CCTV
	Pathways	13000	8	104000	144.4	Lighting & CCTV
Pumps				10000	13.9	
Total				2430570	3375.8	

NOTES TO TABLE C3:

^a See Clause 1.6.3 for where the maximum demand for consumers mains, submains, and final subcircuits, respectively, may be determined by assessment, measurement or limitation.

^b In the calculation of the connected load, the following ratings shall be assigned to lighting:

- (i) *Incandescent lamps* 60 W or the actual wattage of the lamp to be installed, whichever is the greater, except that if the design of the luminaire associated with the lampholder permits only lamps of less than 60 W to be inserted in any lampholder, the connected load of that lampholder shall be the wattage of the highest rated lamp which may be accommodated. For multi-lamp luminaires, the load for each lampholder shall be assessed on the above basis.
- (ii) *Fluorescent and other discharge lamps* Full connected load, i.e. the actual current consumed by the lighting arrangement, having regard to auxiliary equipment, such as ballasts and capacitors.
- (iii) *Lighting tracks* 0.5 A/m per phase of track or the actual connected load, whichever is the greater.

^c A socket-outlet installed more than 2.3 m above a floor for the connection of a luminaire may be included as a lighting point in load group A. An appliance rated at not more than 150 W, which is permanently connected, or connected by means of a socket-outlet installed more than 2.3 m above a floor, may be included as a lighting point in load group A.

^d Load group B (ii) applies to an electrical installation, or portion of an electrical installation, incorporating permanently installed heating and/or cooling equipment specifically provided to render unnecessary the use of socket-outlets for portable electric space heating or cooling appliances. Whether heating or cooling or both is deemed necessary to avoid the use of portable heating or cooling equipment will depend on the location and climate involved.

^e For the purpose of determining maximum demand, a multiple combination socket-outlet shall be regarded as the same number of points as the number of integral socket-outlets in the combination.

COMMS ROOM AND ELECTRICAL CUPBOARD

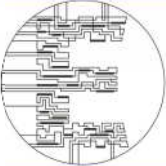
KIOSK SUBSTATION No.2 AND MAIN SWITCHBOARD ROOM No.2

COMMS ROOM AND ELECTRICAL CUPBOARD

COMMS ROOM AND ELECTRICAL CUPBOARD

KIOSK SUBSTATION No.1 AND MAIN SWITCHBOARD ROOM No.1

	SPACE OR ROOM	SIZE	FIRE INTEGRITY OF SPACE OR ROOM	DOOR REQUIREMENTS	GENERAL NOTES
1	Electrical Substation (Kiosk Type Substation)	Typical Easement 5,300 mm (W) x 3,300 mm (L) *may vary upon final selection of kiosk type.	Generally requires: (A) Minimum 3,000 mm clearance from any structure with a Fire Resistance Level (FRL) less than 120/120/120. Openable or fixed windows or glass blockwork or similar, irrespective of their fire rating, are not permitted within 3 metres in any direction from the housing of the substation - <i>unless they are sheltered by a non-ignitable blast resisting barrier.</i> (B) Minimum distance of 6,000 mm from building ventilation system openings is required. For the purpose of this section Eneavour does not regard openable windows, that provide natural ventilation to one building compartment only, as an building ventilation system opening. (C) FRL rating as per authority standards	N/A	Kiosk substation to be located as per Endavour Energy Standards
2	Main Switchboard Room/Building (2x)	7,500mm (W) x 4,000 mm (D) with clear headroom of 3,000 mm *Clear <u>internal</u> dimensions.	FRL 120/120/120	> One set of double equipment access doors: 1,800 mm (W) 2,400 mm (H) > Plus one single door: 800 mm (W) x 2,100 mm (H) > Door to be spaced well apart to allow for alternate paths of egress. > Doors to open outwards. > Doors to be self-closing.	> Room to have positive mechanical ventilation. > Room to be free of island or intruding columns. > Ideally be positioned near site substation (if applicable). > As consumers mains support emergency equipment they shall enclosed by construction of 120/120/120 and have classification of W553W where subject to vehicle damage and W552W elsewhere. > No ceiling required.
3	Main Communications Room	3,000 mm (W) x 3,000 mm (D) with clear headroom of 3,000 mm *Clear internal dimensions.	None required	> One and a half leaf access doors required: 1,300 mm (W) clear door opening x 2,100 mm (H) > Where door is located in a path of travel to a required exit, they are to be fitted with smoke seals. > Doors to be solid core.	> Antistatic floor covering. > Additional authority requirements may apply. > Room requires ventilation, may need conditioning. > No ceiling required.
4	Electrical Power Cupboards for buildings	2,500mm (W) x 1000mm (D) *Clear internal dimensions		> One set of full height double doors. > Door/s to open outwards. > Doors to be solid core and full height.	> Where is located in a path of travel to a required exit, they are to be fitted with smoke seals.
4	Communications Room for Buildings	2,800mm (W) x 1,400mm (D) *Clear internal dimensions		> One set of full height doors. > Door/s to open outwards. > Doors to be solid core and full height.	> Where is located in a path of travel to a required exit, they are to be fitted with smoke seals.



EVOLVED
ENGINEERING

BLACKTOWN ZOO		
P15085	03/12/15	EIS Exhibition
Electrical Services		
Spatial		

Notes:
1. All mechanical equipment shown are external units. VRF condenser units can be mounted on rooftop or on ground level.

1 Nos. 600mm x 600mm roof mounted exhaust fans for Male, Female & Dis. Toilets

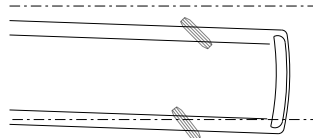
1 Nos. 940mm(L) x 320mm(W) x 1430mm(H) outdoor VRF condenser unit for Security Room

4 Nos. 940mm(L) x 320mm(W) x 1430mm(H) outdoor VRF condenser units for Retail Area

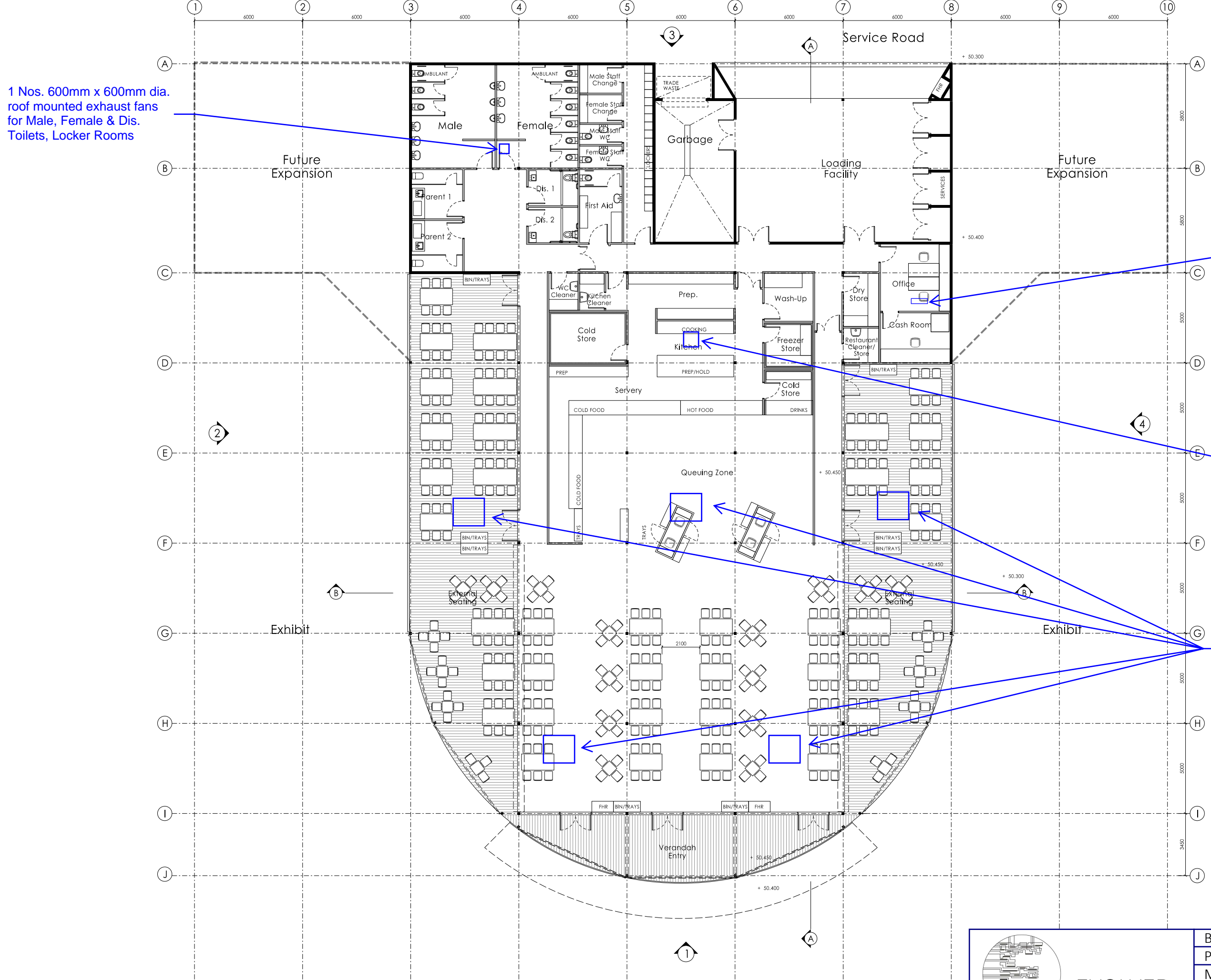
1 Nos. 940mm(L) x 320mm(W) x 990mm(H) outdoor VRF condenser units for Prayer Room

1 Nos. 940mm(L) x 320mm(W) x 1430mm(H) outdoor VRF condenser unit for Lost Kids Room, First Aid, Office, Cash Room, Retain Office

1 Nos. 500mm x 500mm roof mounted exhaust fans for Male, Female & Dis. Toilets, Change Rooms



Bus Drop Off Zone



Notes:
1. All mechanical equipment shown are external units. VRF condenser units can be mounted on rooftop or on ground level.

1 Nos. 940mm(L) x 320mm(W) x 990mm(H) outdoor VRF condenser units for Office, Cash Room

1 Nos. 900mm x 900mm roof mounted kitchen exhaust fan for kitchen area.

5 Nos. 1755mm(L) x 1510mm(W) x 1200mm(H) outdoor air cooled PAC units

Notes:
1. All mechanical equipment shown are external units. VRF condenser units can be mounted on rooftop or on ground level.

3 Nos. 940mm(L) x 320mm(W) x 1430mm(H) outdoor VRF condenser units for Vet Treatment 1&2, Vet Office, Rescue Room, First Aid Room & Food Prep

1 Nos. 200mm x 200mm roof mounted exhaust fan for Vet Waste

7 Nos. 940mm(L) x 320mm(W) x 1430mm(H) outdoor VRF condenser units for Open Plan Areas, Staff Breakout, Curatorial Manager Office, General Manager Office, Meeting Rooms & Data Room

1 Nos. 500mm x 500mm roof mounted exhaust fan for Male, Female & Dis. Toilets