LEGEND

NOTE: NOT ALL SYMBOLS USED

RETICULATION

RETICULATION, CONDUIT AND/OR CABLING
No. = REFER TO RETICULATION SCHEDULE

C — COMMUNICATION CABLE/CONDUIT
EX-C — EXISTING COMMUNICATIONS CABLE / CONDUIT
E — ELECTRICAL CABLE/CONDUIT
EX-E — EXISTING ELECTRICAL CABLE/CONDUIT

COMMUNICATION CABLE TRAY

POWER CABLE TRAY

PREFABRICATED CONCRETE PIT WITH TRAFFICABLE LID
C = COMMUNICATION PIT
E = ELECTRICAL PIT
P = ELECTRICAL PILLAR
T = TELSTRA PIT

EXISTING PIT

POWER

SUBSTATION

NEW MAIN SWITCH BOARD (MSB)

EXISTING MAIN SWITCH BOARD (MSB)

NEW DISTRIBUTION BOARD (DB)

EXISTING DISTRIBUTION BOARD (DB)

SWITCHBOARD PROVIDED BY OTHER TRADES

PFC — POWER FACTOR CORRECTION UNIT

SINGLE GENERAL PURPOSE OUTLET (GPO) 10A

DOUBLE GENERAL PURPOSE OUTLET (GPO) 10A

THREE PHASE POWER OUTLET 10A

15A = 15A OUTLET
20A = 20A OUTLET
AD = AUTOMATIC DOOR
BWU = BOILING WATER UNIT
CAP = CAPTIVE OUTLET
CL = CLEANERS OUTLET
CM = CEILING MOUNTED
DW = DISHWASHER
FM = FLOOR MOUNTED
L = LARGE MECHANISM - 25mm
MW = MICROWAVE
PDT = PENDANT
PRJ = PROJECTOR
R = REFRIGERATOR
RH = RANGE HOOD
SS = STARTER SOCKET TO SUIT SOFT WORK STATION
WM = WASHING MACHINE
WP = WEATHERPROOF
HWC = HOT WATER CIRCULATION PUMP
HWT = HOT WATER TRACE

A = 150mm ABOVE BENCH
B = 750 ABOVE FLOOR
C = 1200 ABOVE FLOOR
D = 1500 ABOVE FLOOR
E = 1800 ABOVE FLOOR
F = 2400 ABOVE FLOOR
U = UNDER BENCH

NOTE: POWER OUTLETS TO BE MOUNTED AT 400mm AFFL U.N.O.

S — SKIRTING DUCT (REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS)
W — WALL DUCT (REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS)

BUZZER

PERIOD BELL

CLOCK

1- P 1 — CIRCUIT DESIGNATION
CIRCUIT No.
P = POWER
L = LIGHTS
SWITCH BOARD No.

MOMENTARY PUSH BUTTON
A = AFTER HOURS
D = DOOR RELEASE
E = EMERGENCY

PERMANENT CONNECTION TO ELECTRICAL APPLIANCE (APPLIANCE PROVIDED BY OTHERS) CONTRACTOR TO PROVIDE ELECTRICAL CONNECTION C/W LOCAL ISOLATOR

3ϕ = 3 PHASE
AC = AIR CONDITIONING
BWU = BOILING WATER UNIT
CT = COOK TOP
D = DRYER
DHP = DIESEL HYDRANT PUMP
DW = DISHWASHER
EF = EXHAUST FAN
EHP = ELECTRIC HYDRANT PUMP
HD = HAND DRYER
HW = HOT WATER
MW = MOTORISED WINDOW
RS = ROLLER SHUTTER
O = OVEN
R = RANGE
RH = RANGE HOOD
RWR = RAIN WATER REUSE PUMP
RV = ROOF VENTILATOR
SAN = SANITISER
SOL = SOLENOID
SP = SPRINKLER PUMP
UW = UTENSIL WASHER
W = WALL OVEN
WM = WASHING MACHINE

MCP = MECHANICAL CONTROL PANEL

FB — FLOOR BOX
CLIPSAL FFBCT SERIES C/W STAINLESS STEEL RECESSED LID

0 25mm 50mm 100mm ON A1 ORIGINAL

LIGHTING

13W SLIMLINE MIRROR LIGHT C/W OPAL DIFFUSER - CROMPTON FL13D

14/18W

28/36W

A2 — No OF TUBES
FITTING DETAIL
A2 = 2x28W DIFFUSED BATTEN - LIMELITE SCHOOLIES SCH-SM-1200-4K SUSPENDED BY ROD AT 2400 AFFL
B1 = 1x28W WEATHERPROOF LIMELITE STORM STM-SM-1200-4K
F2 = 2x28W FOOD PREP SURFACE MOUNTED HARCROFT FPSX228 4K

LIGHT C/W INTERGRAL EMERGENCY PACK

G = 32W LED PANEL SAL S9714/606CW 4K C/W SURFACE MOUNTED FRAME (600x600)

BOLLARD LIGHT

CEILING LIGHT
C1 = 18W LED OYSTER 4K - CROMPTON 27276

D1 = 14W LED RECESSED DOWNLIGHT 4K ROBUS R14WDLCW-01
D2 = DIMMABLE 53W LED TRACK MOUNTED WALL WASHER 4K ZUMTOBEL - INTRO LITE CARVE
D3 = DIMMABLE 27W LED SINGLE GIMBAL MOUNTED RECESSED DOWN LIGHT ZUMTOBEL - CARDAN EL LED 27W 840 SQUARE SURROUND WHITE WFL-SWH

EXIT SIGN, LED, PICTOGRAPH & MAINTAINED
PIERLITE LEDXM2P
EXIT SIGN WITH DIRECTION OF EGRESS ARROW
PIERLITE LEDXM2P
3W RECESSED LED EMERGENCY LIGHT NON-MAINTAINED
PIERLITE FFRLED

LSP — LIGHT SWITCH PANEL - WITH MARKED MECHANISIMS - CLIPSAL 10Ax

2W — ONE WAY SWITCH & SWITCHING
2P = TWO POLE SWITCH
2W = TWO WAY SWITCH
AH = AFTER HOURS
A/M = AUTO-OFF-MANUAL
D = DIMMER SWITCH
INT = INTERMEDIATE SWITCH
IR = INFRA-RED SWITCH WITH 15min DELAY OFF, PROVIDE AUTO/OFF/ON SWITCH
K = KEY OPERATED SWITCH
L = 25mm MECHANISMS
T = TIME SWITCH - ELECTRONIC

MS — CEILING MOUNTED MOTION SENSOR - CLIPSAL 20MIN 14m 360° 753R
WP = SURFACE MOUNTED IP54 - CLIPSAL 15MIN 24m 360° 753SSR

CORNER MOUNTED MOTION SENSOR - CLIPSAL 20MIN 6m 90° 751R
WP = OUTDOOR IP66 - CLIPSAL 20MIN 18m 110° 75OWPR

PE — PHOTO ELECTRIC CELL

ACCESS CONTROL

SP — PANELS
SP = SECURITY PANEL (EXISTING)

ES = ELECTRIC STRIKE
K = KEYPAD
ML = MAGLOCK
R = REED SWITCH

MOVEMENT DETECTOR PIR - PASSIVE INFRARED

FIRE DETECTION

FIP — FIRE INDICATOR PANEL AS1670.1 SECTION 7

SMOKE DETECTORS

FAS — FIRE ALARM SHUT DOWN

NOTE:
SMOKE DETECTION PROVIDED FOR MECHANICAL SYSTEM SHUT DOWN ONLY.

HEATING/VENTILATION

CEILING FAN - 7.3m BIG ASS FAN INCLUDING SCHOOL PACKAGE FROM AIRWAY

FC — FAN CONTROLLER

SINGLE LINE DIAGRAM

BUSBAR

CABLE OR WIRE (BROKEN LINES INDICATE EXISTING CABLE OR SWITCHWIRE)

SINGLE PHASE

THREE PHASE

ISOLATOR SWITCH - FAULT MAKE, LOAD BREAK

CIRCUIT BREAKER
ELCB = INTEGRAL EARTH LEAKAGE CIRCUIT BREAKER
RCD = RECIDUAL CURRENT DEVICE INTEGRAL WITH CIRCUIT BREAKER (30mA U.N.O.)
ST = SHUNT TRIP ATTACHED TO CIRCUIT BREAKER
160/200 — 160A SET CURRENT/ 200A FRAME SIZE

FUSE

240V / 24V — POWER TRANSFORMER

CURRENT TRANSFORMER

kWH — KILOWATT POWER METER - ELECTRICITY DISTRIBUTOR

kWH — METER
kWH = KILOWATT HOUR
PA = POWER ANALYZER

K_E — CONTACT/RELAY COIL
A_C = AIR CONDITIONING
D_{OT} =DELAY ON TIMER (1 min)
E_F =EXHAUST FAN
K_D = DRIVEWAY LIGHT CONTACTOR
K_E = EMERGENCY LIGHTS TEST RELAY
K_{EX} = EXTERNAL LIGHT CONTACTOR
K_L = LIGHT CONTACTOR
K_{LT} = TIME SWITCHED LIGHTS CONTACTOR
K_{SEC} = SECURITY CONTROL CONTACTOR
M_S = MOTION SENSOR
P_E = PHOTO ELECTRIC SWITCH
R = RELAY UNIT
R_{OT} = RUN ON TIMER
T_S = TIME SWITCH (24hr C/W 24hr BATTERY RESERVE MULTI-STAGE PROGRAMMABLE
T_{SR} = TIME SWITCH RELAY

SURGE PROTECTION

A O M — THREE POSITION SELECTOR SWITCH

TEE-OFF

FUSED TEE-OFF

CONTACTOR CONTACTS NORMALLY OPEN

CONTACTOR CONTACTS NORMALLY CLOSED

2 — NORMALLY OPEN PUSH BUTTON
2 = 2hr TIMER WITH RESET FACILITY
K = KEY OPERATED

NORMALLY CLOSED PUSH BUTTON

EARTH

NOTES

GENERAL NOTES:

1. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH:
   - AUSTRALIAN STANDARDS
   - BUILDING CODE OF AUSTRALIA
   - NSW SERVICES & INSTALLATION RULES
2. PRIOR TO TENDERING THE ELECTRICAL CONTRACTOR SHALL CONDUCT SITE INSPECTION TO DETERMINE ALL NECESSARY EQUIPMENT & CABLING REQUIRED FOR A COMPLETE WORKABLE POWER, LIGHTING COMMUNICATION & SECURITY SYSTEMS.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL LAYOUTS & THE ELECTRICAL SPECIFICATION.
4. DRAWINGS ARE DIAGRAMMATIC, REFER TO ARCHITECTURAL DRAWINGS & CO-ORDINATE ON SITE, &/OR INSTRUCTIONS FOR FINAL LOCATIONS OF ALL LIGHT FITTINGS, OUTLETS, ETC.
5. ANY VARIANCE FROM NOMINATED BRANDS SHALL BE CLEARLY STATED IN TENDER WITH RESPECTIVE SAVINGS.
6. CABLES SHALL BE MULTI STRANDED CONDUCTORS OF THE FOLLOWING MINIMUM SIZES:
   LIGHTING 2.5mm
   POWER 2.5mm
   ALL OTHER CABLING SHALL BE RATED TO PROTECTIVE CIRCUIT BREAKER, NEUTRAL TO BE EQUAL TO CROSS SECTIONAL AREA OF LIVE CONDUCTORS UNLESS NOTED OTHERWISE.
7. BEFORE PRACTICAL COMPLETION. THE CONTRACTOR IS TO PROVIDE:-
   - "AS-INSTALLED" DRAWINGS OF ALL THE SERVICES
   - BOUND MANUALS WITH DETAILS OF ALL SUPPLIED EQUIPMENT AND COMPONENTS
8. NUMBER EACH END OF ALL MAINS, SUB MAINS & CONTROL CABLES TO IDENTIFY CABLE.
9. ALL WORKS TO BE STAGED TO SUIT BUILDING WORKS & MANAGEMENT OPERATIONS.
10. ALL ROOF PENETRATIONS ARE SUBJECT TO ARCHITECTS APPROVAL.
11. ALL POWER RETICULATION TO BE RUN AS PER RELEVANT STANDARDS THROUGHOUT. SEGREGATION OF POWER + COMMS REQUIRED. CONDUCT SITE INSPECTION PRIOR TO TENDERING & NOTIFY BUILDER/MANAGEMENT OF ALTERNATE SYSTEMS WHERE REQUIRED.
12. MOUNT ALL POWER, COMMS & TV OUTLETS ON FIRE/ACCOUSTIC WALLS IN SUITABLE BOXES.
13. INSTALL SMOKE DETECTORS A MINIMUM OF 400mm CLEAR OF A/C DIFFUSERS.
14. ALL POWER OUTLETS, LIGHT SWITCHES, TELECOMMUNICATIONS OUTLETS, MATV OUTLETS, FAN CONTROLLERS ETC TO HAVE MATCHING COVERS - TO BE CLIPSAL 2000 SERIES.

EXISTING SERVICES & FEATURES
NOTES:

1. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING SERVICES THAT ARE TO BE RETAINED IN THE VICINITY OF THE PROPOSED WORKS. ANY AND ALL DAMAGE TO THESE SERVICES AS A RESULT OF THESE WORKS, OR ANY ECONOMIC LOSS SUFFERED AS A RESULT OF DAMAGES TO SERVICES, SHALL BE REPAIRED OR REMEDIED BY THE CONTRACTOR UNDER THE DIRECTION OF THE AUTHORISED PERSON FOR THE PRINCIPAL, AND NO COST TO THE PRINCIPAL.
2. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR ADJUSTMENT IF REQUIRED OF EXISTING SERVICES IN AREAS AFFECTED BY WORKS.
3. RETAIN & MODIFY EXISTING METER PANEL & SUPPLY.
4. ALL CIRCUITS TO ORIGINATE FROM NEW CB's ON NEW DISTRIBUTION BOARD.
5. ALL WIRING TO BE NEW.

DRAWING SCHEDULE:

E-01	LEGEND, NOTES & DRAWING SCHEDULE	N.T.S
E-02	GROUND FLOOR POWER & COMMS LAYOUT	1:100
E-03	GROUND FLOOR LIGHTING & SECURITY LAYOUT	1:100
E-04	SINGLE LINE DIAGRAM & BLOCK DIAGRAMS	N.T.S

Date	Issue	Reason for Issue
8.6.16	1	CONSTRUCTION CERTIFICATE ISSUE

MARLINE NEWCASTLE PTY LTD
CONSULTING ENGINEERS
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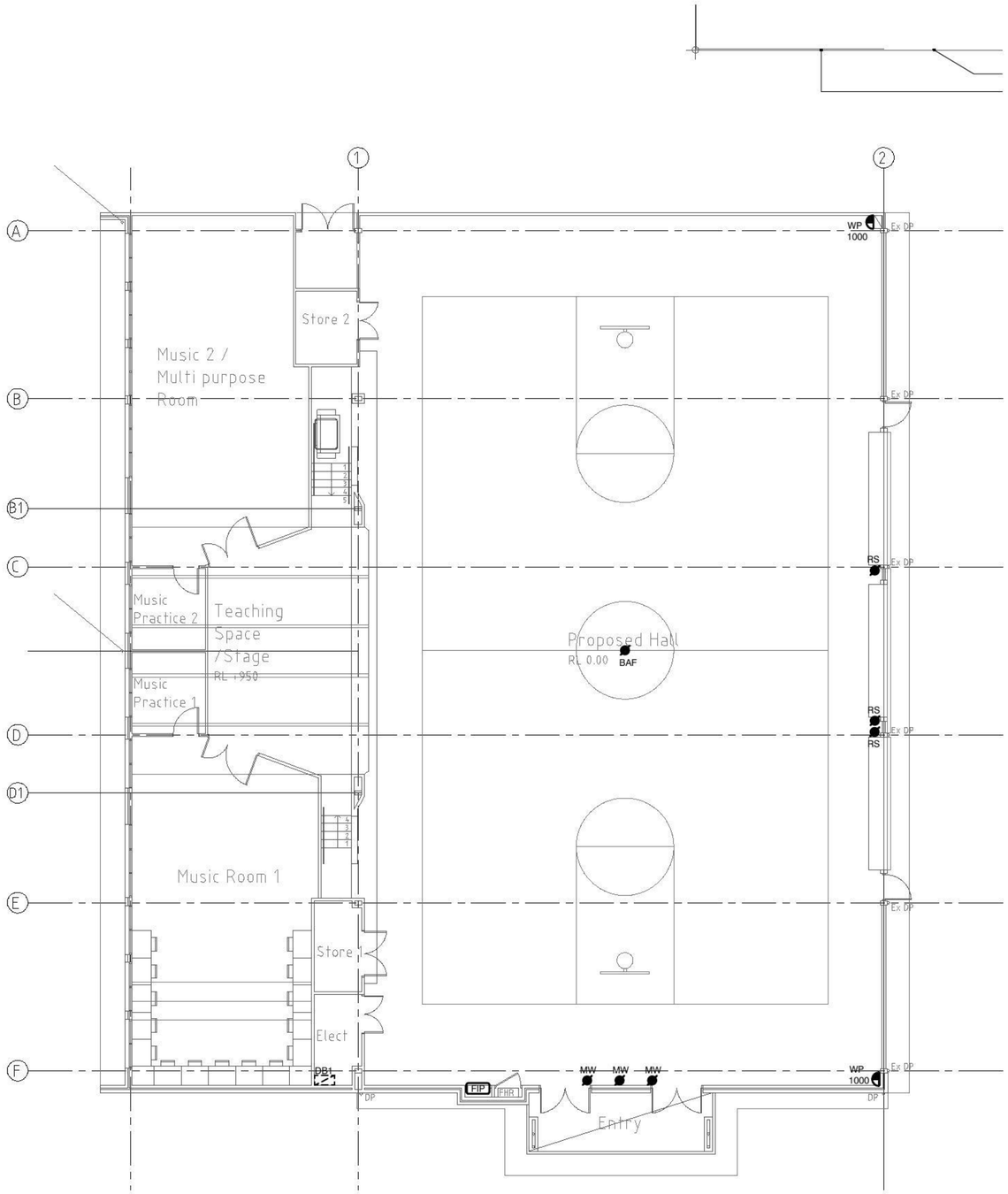
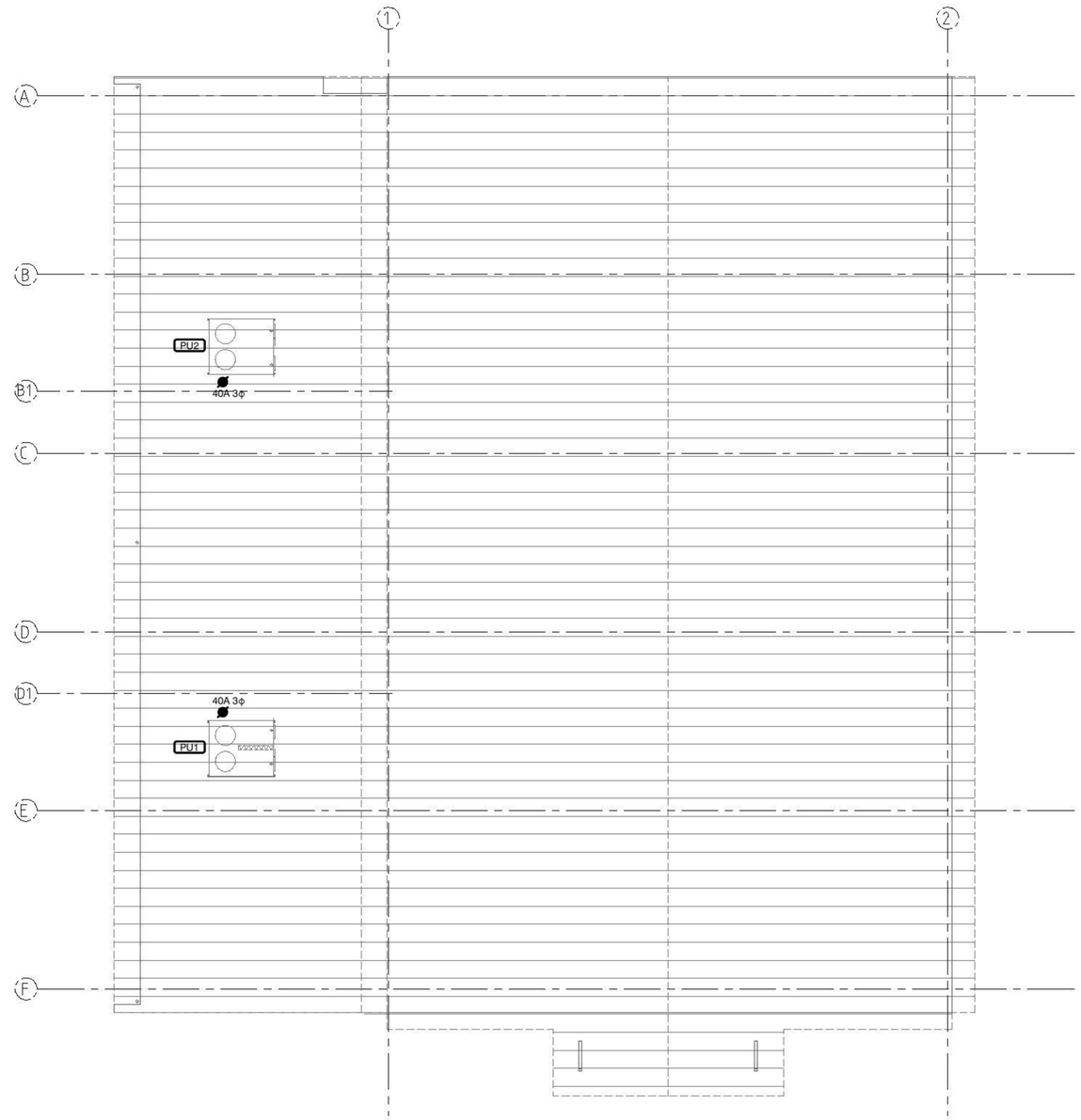
Client: THE PARED FOUNDATION
Architect: CARROLL AND CARROLL ARCHITECTS
Project: ENCLOSE EXISTING COLA WOLLEMI COLLEGE GIPPS ST, WERRINGTON NSW 2747

Drawn : R.S. | Design : F.PENTECOST | Verify : K.HOYER
Scale @ A1 : N.T.S | Date : JUNE 2016
Discipline: ELECTRICAL SERVICES
Job No.: 9336
Drawing Title: LEGEND, NOTES & DRAWING SCHEDULE
Issue: 1
Drawing No.: E-01



COLA LAYOUT



ROOF LAYOUT

0 25mm 50mm 100mm ON A1 ORIGINAL

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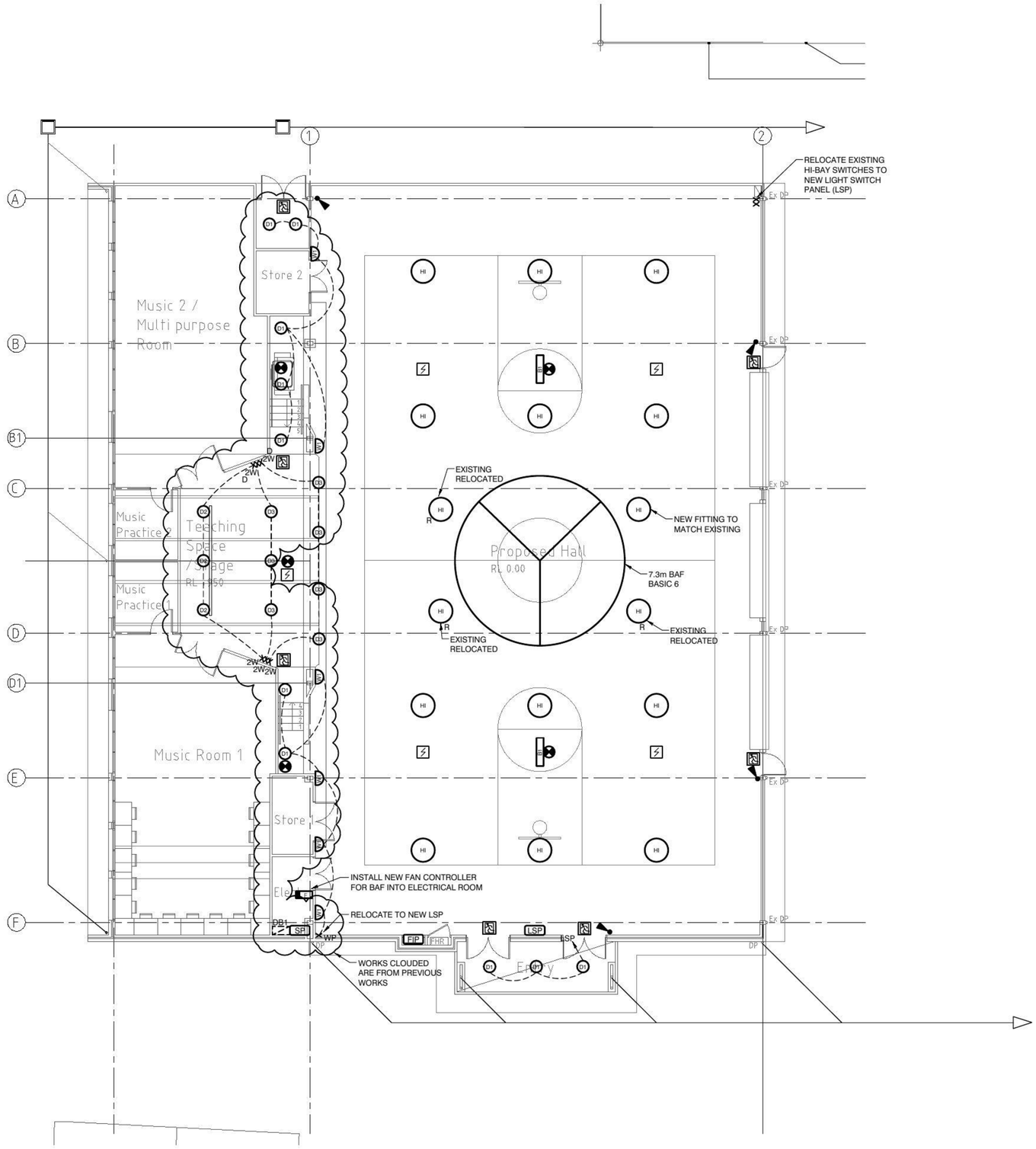
Scale @ A1 : 1:100	Date : JUNE 2016	

Discipline: ELECTRICAL SERVICES
Job No.: 9336
Drawing Title: POWER & COMMS LAYOUT
Issue: 1
Drawing No.: E-02



NOTE

HI — EXISTING INDUCTION HIGHBAYS - RELOCATE 3 & PROVIDE 1 NEW TO MATCH TO CLEAR SWEEP OF NEW BIG ASS FAN BY 600mm. MOUNT 4 LIGHTS AT SAME LEVEL AS FAN BLADES. USE RIGID SUPPORT FOR LIGHTS TO PREVENT SWAY FROM FAN.

PROVIDE ADDITIONAL MOTION SENSORS & INTEGRATE INTO SECURITY PANEL INSTALLED DURING PREVIOUS WORKS.

LSP — NEW LSP TO BE LOCKABLE & INCLUDE SWITCHING FOR EXISTING HIGHBAYS, RELOCATED SWITCHES & MOTORISED WINDOW CONTROLS.

0 25mm 50mm 100mm ON A1 ORIGINAL

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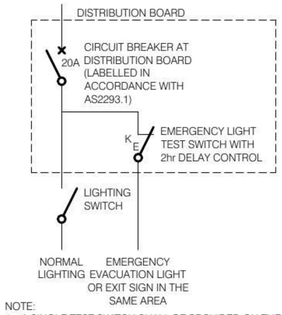
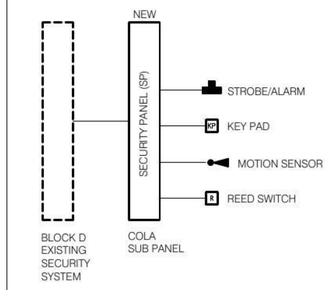
Scale @ A1 : 1:100	Date : JUNE 2016		
Discipline: ELECTRICAL SERVICES		Job No.: 9336	
Drawing Title: LIGHTING & SECURITY LAYOUT		Issue: 1	
		Drawing No.: E-03	



NOTE:
1. A SINGLE TEST SWITCH SHALL BE PROVIDED ON THE DISTRIBUTION BOARDS WITH EMERGENCY LIGHTING (BATTERY OPERATED), AND BE OPERABLE WITHOUT INTERRUPTION TO THE PRIMARY LIGHTING SUPPLY. A PERMANENT ENGRAVED NOTICE INDICATING THE METHOD OF TESTING SHALL BE FIXED ADJACENT TO THE SWITCH.
2. FAILURE OF THE LOCAL LIGHTING CIRCUIT IN THE SAME AREA SHALL ACTIVATE THE STANDBY EMERGENCY LIGHTING.

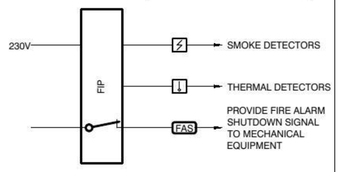
EMERGENCY LIGHTING TYPICAL WIRING DIAGRAM



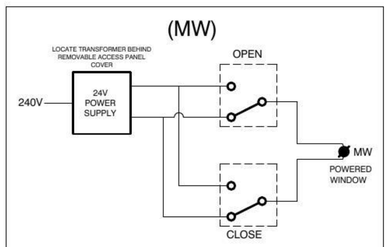
SECURITY & ACCESS BLOCK DIAGRAM

NOTES:
1. SYSTEM TO INTERFACE WITH EXISTING COMMANDER SECURITY SYSTEM.
2. PROVIDE A SEPARATE SECURITY ZONE WITH SEPARATE ACCESS CODE ETC.

TYPICAL FIRE DETECTION SYSTEM FOR SHUTDOWN OF MECHANICAL VENTILATION (SPACED SYSTEM)

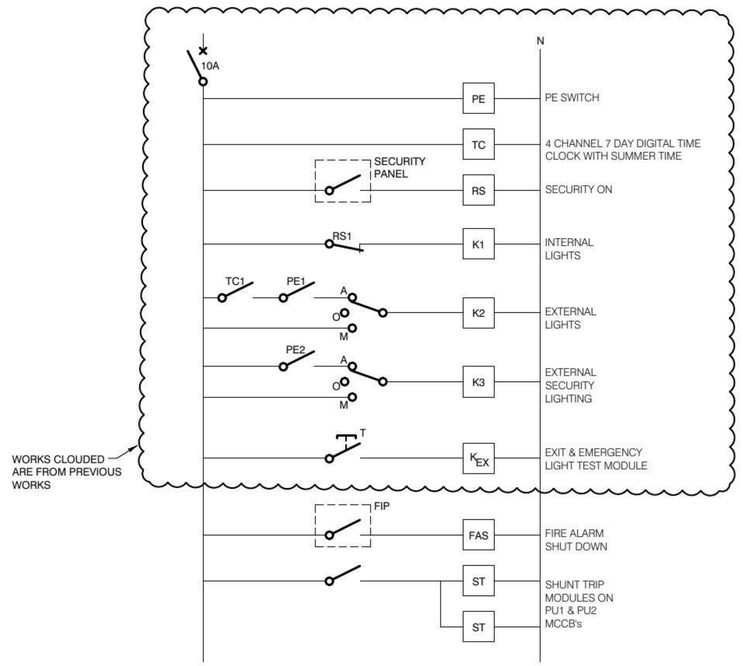


NOTES:
1. SYSTEM TO BE INSTALLED AS PER BCA CLAUSE 5 OF SPEC E2.2A, AS-1668.1 & AS-4428.1.
2. CO-ORDINATE WITH MECHANICAL CONTRACTOR FOR FINAL LOCATIONS & REQUIREMENTS - PAY ALL COSTS.
3. INTERFACE WITH EXISTING SECURITY SYSTEM TO RAISE ALARM ON DETECTION OF FIRE.



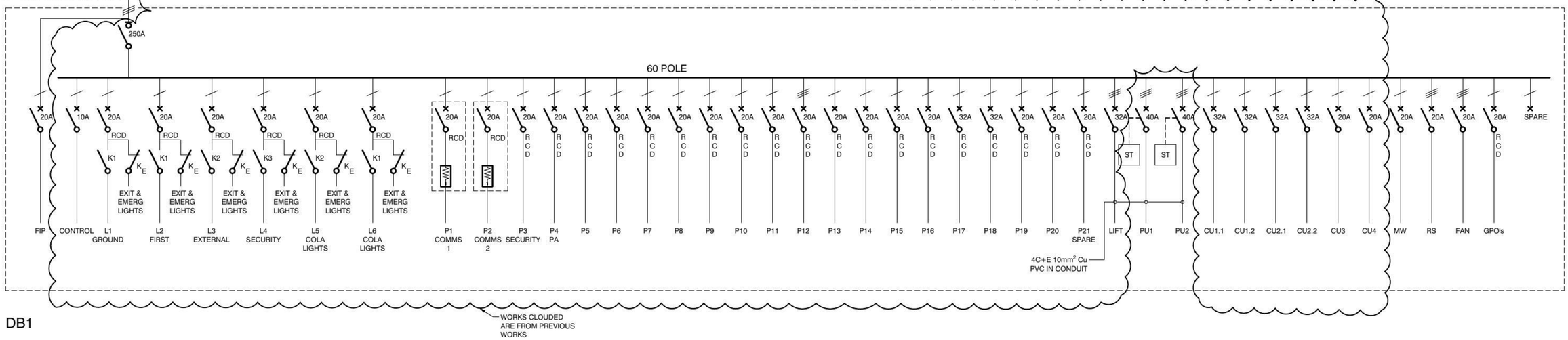
TYPICAL POWERED WINDOW POWER & CONTROL BLOCK DIAGRAM

NOTES:
1. CONTROLS TO BE LOCATED ON LIGHT SWITCH PANEL COMPLETE WITH ENGRAVED LABEL.
2. THIS IS A TYPICAL DIAGRAM, CO-ORDINATE WITH LOUVRE SUPPLIER FOR THEIR SPECIFIC REQUIREMENTS.
3. SIZE CABLES TO MEET LOUVRE SUPPLIERS VOLTAGE DROP REQUIREMENTS.



DB1 CONTROL SCHEMATIC (TYPICAL)

PROVIDE FIRE SHUT DOWN CONTROLS FOR NEW HALL A/C.



DB1

NOTES:
1. PROVIDE ISOLATORS FOR EQUIPMENT PROVIDED BY OTHER TRADES, CO-ORDINATE FINAL LOCATION WITH OTHER TRADES.
2. PROVIDE TYPED DB SCHEDULE.
3. MODIFY EXISTING DB1 TO SUIT NEW WORKS.
4. ALL NEW EQUIPMENT TO MATCH EXISTING.

0 25mm 50mm 100mm ON A1 ORIGINAL

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Scale @ A1 : N.T.S | Date : JUNE 2016
Discipline: ELECTRICAL SERVICES | Job No. 9336
Drawing Title: SINGLE LINE DIAGRAM & BLOCK DIAGRAMS | Issue 1
Drawing No. E-04