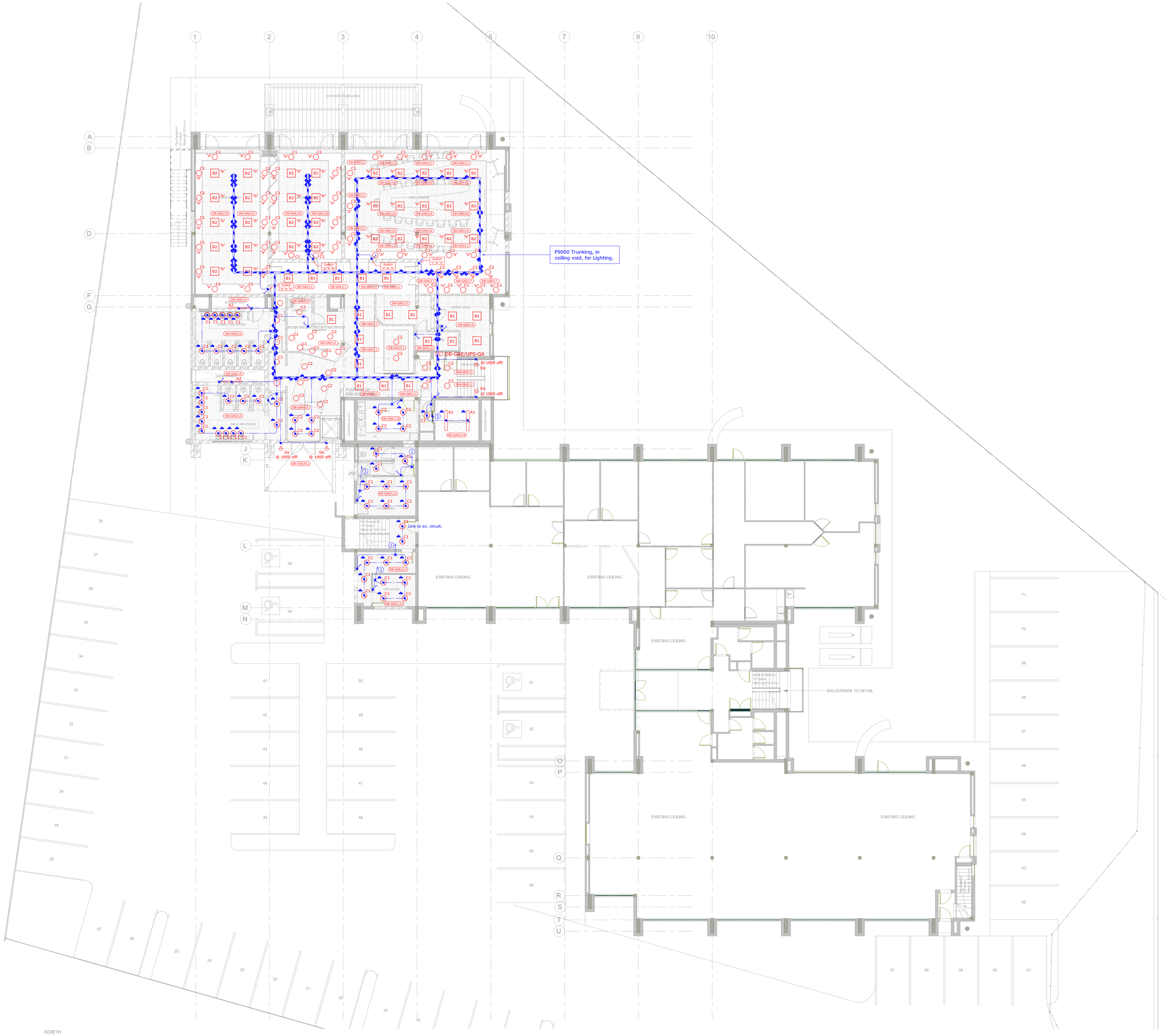

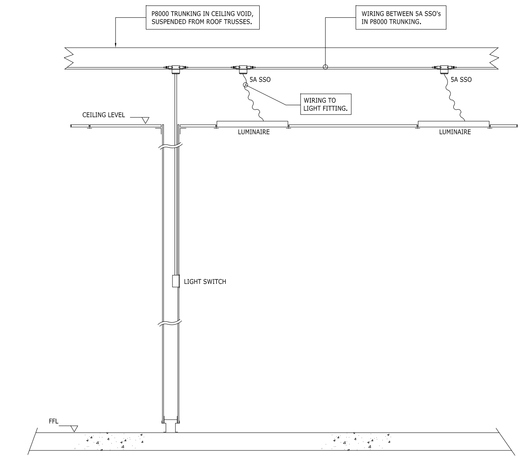

5 Amp SSO's link to Light Fitting Detail
nts

GENERAL NOTES

This drawing is issued for Electrical purposes only, and should be read in conjunction with the Electrical Specification. Setting out of Electrical and Electronic accessories are to be as indicated on Architects details.

Refer to Architects and Structural Drawings for all building dimensions, latest building revisions and services.

Do not scale this drawing.

All work to comply with relevant Standards, Codes of Practice, Specification and Regulations.

DRAWING NOTES:

1. Conduit links back to DB via Trunking.
2. Multi-gang Control Light switching for individual beds and common areas lighting.
3. 2 Lever Light switch in 100mm x 100mm box.
4. External lighting to be mounted @ 2400mm affl unless otherwise indicated.
5. Conduit box for Strong room Indicator light.

P8000 TRUNKING IN CEILING VOID FOR ALL LIGHTING WIRING.

REV	DATE	BY	DESCRIPTION	CHK
T00	30/06/20	VT	For Tender Purposes	MK
0	15/05/20	VT	Original Issue	MK

REVISIONS

IBUA Consulting Engineers
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FAX: +27 (0)31 2667340
E-mail: ibua@ibua.co.za

PROJECT/SERVICES
Umalusi Existing Offices
Additions and Alterations

Electrical Services

TITLE
Ground Floor
Lighting Layout

ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	Oct'19	MK	1:100

PAPER SIZE: A0

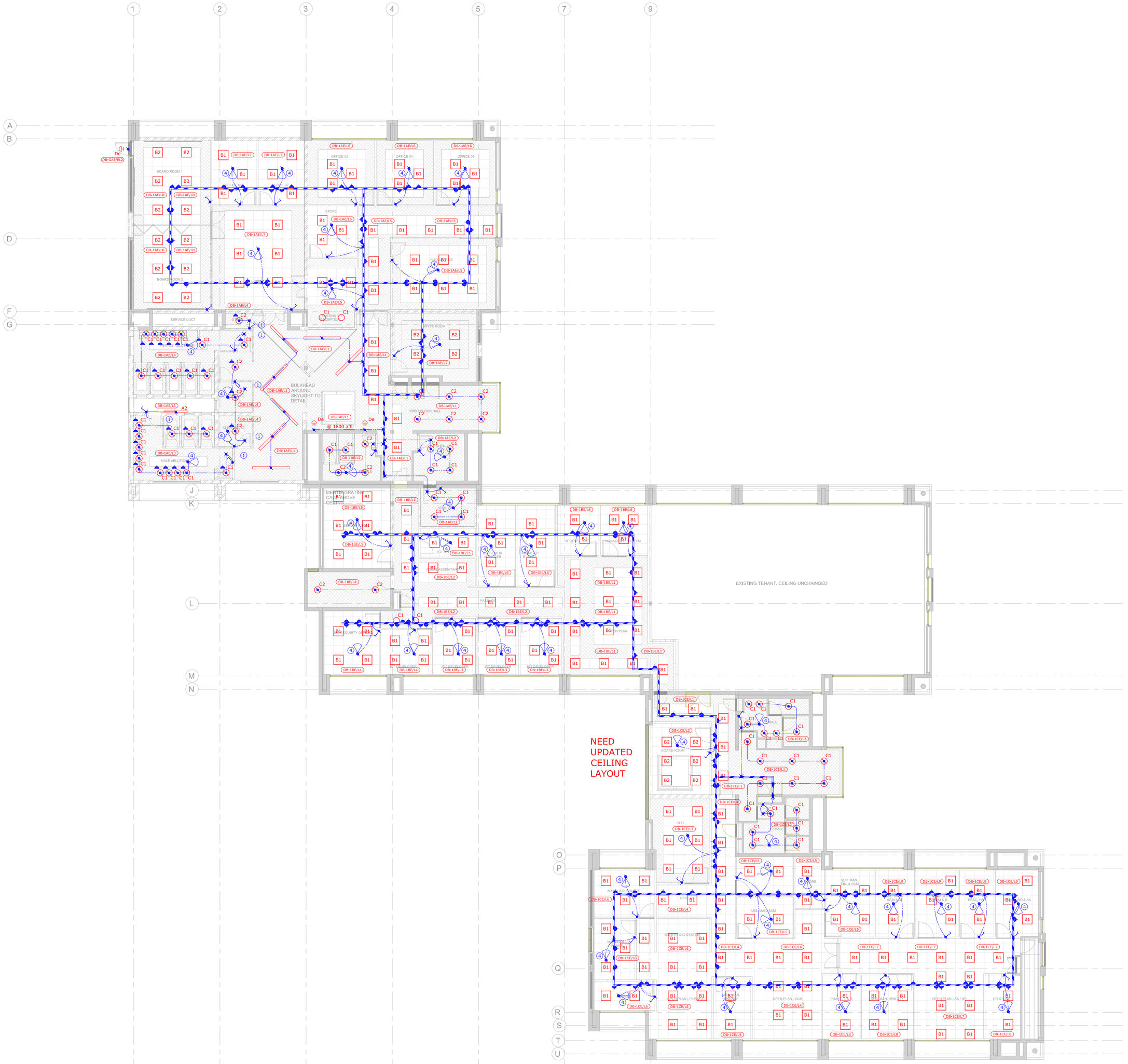
PROJECT No.	DRAWING No.	SHEET:	REV:
19034	100		T00

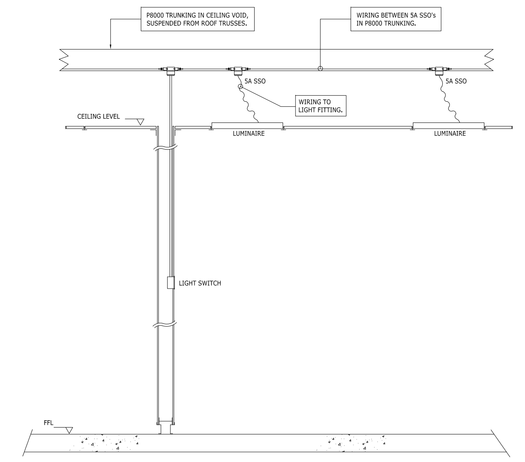
FILE: \19034_100 LAYER:

NOTES: (1) - Contractor to ensure max distance between draw boxes 20 metres notwithstanding anything to contrary. (2) - Draw boxes required after every second 90 deg, bend or 180 deg, total of slow bends. (3) - All unwired conduits to be provided with draw wires. These will be withdrawn and checked at random. (4) - Cast In conduits to be spaced 35mm. minimum.

- 100x100 CONDUIT BOX.
- 100x100 CONDUIT BOX AT 500AFFL.
- 100x100 CONDUIT BOX AT 1400AFFL
- 100x50 CONDUIT BOX
- 100x50 CONDUIT BOX AT 300AFFL.
- 100x50 CONDUIT BOX AT 1400AFFL.
- ROUND CONDUIT BOX.
- CLUSTER BOX (SIZE AS NOTED)
- ROUND DRAW BOX
- 100x100 DRAW BOX
- 100x50 BOX BEHIND POWER SKIRTING
- CONDUIT TURNED UP (↑)/ FOR (DOWN)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.
- ROUND CONDUIT BOX FOR:
  - DH – DOOR MONITOR
  - CAM – CAMERA
  - AA – ACCESS ALARM
  - AC – ACCESS CONTROL
  - CR – CARD READER
  - COM – COMMUNICATION/INTERCOM
  - BGM – BACK GROUND MUSIC
  - EL – ELECTRIC LOCK/STRIKE
- 20mm. DIA. CONDUIT.
- 25mm. DIA. CONDUIT.
- 32mm. DIA. CONDUIT.
- 50mm. DIA. CONDUIT.
- SECTION OF CONDUIT OMMITED FOR CLARITY.
- SURFIX
- TWIN AND EARTH
- CABLE ROUTE
- VC OVERHEAD CAST-IN
- IN OVERHEAD ON SURFACE OR LAID ON CEILING.
- FL FLOOR SLAB CAST-IN.
- FS FLOOR SURFACE (IN FLOOR VOID).
- POWER SKIRTING
- TRUNKING
- CABLE SLEEVE.
- CABLE TRAY/LADDER
- SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- TELEPHONE JUNCTION BOX.
- INTERCOM JUNCTION BOX.
- DATA/COMMS JUNCTION BOX.
- SECURITY, ETC. JUNCTION BOX
- DISTRIBUTION BOARD POSITION.
- DB-1 BOARD DESIGNATION NUMBER.
- 16A SANS 164-1 SWITCHED SOCKET OUTLET (SSO).
- 16A SANS 164-1 DOUBLE SSO.
- 16A SANS 164-1 SSO ON PEDESTAL.
- 16A SANS 164-2 3 PIN SSO.
- 16A SANS 164-1 AND 164-2 COMBINATION SSO.
- 16A SANS 164-4 RED SSO (3rd SHAVED EARTH PIN)
- 16A SANS 164-4 RED SSO ON PEDESTAL
- 3 PHASE C4PDNX SSO.
- 2 POLE ISOLATOR
- 3 POLE ISOLATOR
- 4 POLE ISOLATOR
- 6A SANS 164-3 UNSWITCHED SOCKET OUTLET.
- SINGLE LEVER ONE WAY LIGHT SWITCH.
- INTERMEDIATE LIGHT SWITCH
- TWO WAY LIGHT SWITCH
- MOTION SENSOR
- LIGHT SWITCH WITH MOTION SENSOR
- LINEAR LUMINAIRE
- BULKHEAD/DOWNLIGHTER, ETC.
- WALL MOUNTED LUMINAIRE
- POLE MOUNTED LUMINAIRE.
- TELEPHONE POINT.
- TELEPHONE POINT ON PEDESTAL.
- DIRECT OUTSIDE LINE TELEPHONE POINT (CALL BOX).
- TV OUTLET.
- DATA/COMMS OUTLET.
- BELL PUSH.
- BELL OUTLET.
- SIGN POINT.
- CLOCK OUTLET.
- PHOTOCELL
- X REFERENCE TO QUANTITY Ls. 3No.
- 2 REFERENCE TO A DETAIL i.e. DETAIL 2.
- A REFERENCE TO AN ELECTRICAL NOTE i.e. NOTE A.
- #.34 REFERENCE TO A STANDARD DRAWING i.e. STANDARD DRAWING No.34
- 4 CABLE NUMBER – REFER CABLE SCHEDULE FOR DETAILS.
- LUMINAIRE TYPE "B" – REFER LUMINAIRE SCHEDULE.

A0_H157_1





5 Amp SSO's link to Light Fittting Detail
nts

GENERAL NOTES

This drawing is issued for Electrical purposes only, and should be read in conjunction with the Electrical Specification. Setting out of Electrical and Electronic accessories are to be as indicated on Architects details.

Refer to Architects and Structural Drawings for all building dimensions, latest building revisions and services.

Do not scale this drawing.

All work to comply with relevant Standards, Codes of Practice, Specification and Regulations.

DRAWING NOTES:

1. Conduit links back to DB via Trunking.
2. Multi-gang Control Light switching for individual beds and common areas lighting.
3. 2 Lever Light switch in 100mm x 100mm box.
4. Recessed 360 Degrees Ocupancy Sensor.
5. External lighting to be mounted @ 2400mm affl unless otherwise indicated.

P8000 TRUNKING IN CEILING VOID FOR ALL LIGHTING WIRING.

REV	DATE	BY	DESCRIPTION	CHK
T00	30/06/20	VT	For Tender Purposes	MK
0	15/05/20	VT	Original Issue	MK

REVISIONS

IBUA Consulting Engineers
"PIONEERING DEVELOPMENT"
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PROJECT/SERVICES
Umalusi Existing Offices
Additions and Alterations

Electrical Services

TITLE
First Floor
Lighting Layout

ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	Oct'19	MK	1:100

PAPER SIZE: A0

PROJECT No.	DRAWING No.	SHEET:	REV:
19034	101		T00

FILE: 19034_101 LAYERS:

NOTES: (1) - Contractor to ensure max distance between draw boxes 20 metres notwithstanding anything to contrary.

(2) - Draw boxes required after every second 90 deg, bend or 180 deg, total of slow bends.

(3) - All unwired conduits to be provided with draw wires. These will be withdrawn and checked at random.

(4) - Cast in conduits to be spaced 35mm. minimum.

- C1 100x100 CONDUIT BOX.
- C2 100x100 CONDUIT BOX AT 500AFFL.
- C3 100x100 CONDUIT BOX AT 1400AFFL
- D1 100x50 CONDUIT BOX
- D2 100x50 CONDUIT BOX AT 300AFFL.
- E1 100x50 CONDUIT BOX AT 1400AFFL.
- R ROUND CONDUIT BOX.
- C CLUSTER BOX (SIZE AS NOTED)

- R ROUND DRAW BOX
- S 100x100 DRAW BOX
- F 100x50 BOX BEHIND POWER SKIRTING
- CONDUIT TURNED UP (T)/ FOR (DOWN)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.

DH CAM ETC. ROUND CONDUIT BOX FOR:
DH – DOOR MONITOR
CAM – CAMERA
AA – ACCESS ALARM
AC – ACCESS CONTROL
CE – CARD READER
COM – COMMUNICATION/INTERCOM
BGM – BACK GROUND MUSIC
EL – ELECTRIC LOCK/STRIKE

- 20mm. DIA. CONDUIT.
- 25mm. DIA. CONDUIT.
- 32mm. DIA. CONDUIT.
- 50mm. DIA. CONDUIT.
- SECTION OF CONDUIT OMMITED FOR CLARITY.
- SURFIX
- TWIN AND EARTH
- CABLE ROUTE

- SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- TELEPHONE JUNCTION BOX.
- INTERCOM JUNCTION BOX.
- DATA/COMMS JUNCTION BOX.
- SECURITY, ETC. JUNCTION BOX
- DISTRIBUTION BOARD POSITION.
- DB-1 BOARD DESIGNATION NUMBER.

- VC OVERHEAD CAST-IN
- OS OVERHEAD ON SURFACE OR LAID ON CEILING.
- FC FLOOR SLAB CAST-IN.
- FS FLOOR SURFACE (IN FLOOR VOID).
- POWER SKIRTING
- TRUNKING
- CABLE SLEEVE.
- CABLE TRAY/LADDER

- 16A SANS 164-1 SWITCHED SOCKET OUTLET (SSO).
- 16A SANS 164-1 DOUBLE SSO.
- 16A SANS 164-1 SSO ON PEDESTAL.
- 16A SANS 164-2 3 PIN SSO.
- 16A SANS 164-1 AND 164-2 COMBINATION SSO.
- 16A SANS 164-4 RED SSO (3P SHAVED EARTH PIN)
- 16A SANS 164-4 RED SSO ON PEDESTAL
- 3 PHASE C/FORM SSO.
- 2 POLE ISOLATOR
- 3 POLE ISOLATOR
- 4 POLE ISOLATOR

- 6A SANS 164-3 UNSWITCHED SOCKET OUTLET.
- SINGLE LEVER ONE WAY LIGHT SWITCH.
- INTERMEDIATE LIGHT SWITCH
- TWO WAY LIGHT SWITCH
- MOTION SENSOR
- LIGHT SWITCH WITH MOTION SENSOR

- LINEAR LUMINAIRE
- BULKHEAD/DOWNLIGHTER, ETC.
- WALL MOUNTED LUMINAIRE
- POLE MOUNTED LUMINAIRE.

- TELEPHONE POINT.
- TELEPHONE POINT ON PEDESTAL.
- DIRECT OUTSIDE LINE TELEPHONE POINT (CALL BOX).
- TV OUTLET.
- DATA/COMMS OUTLET.

- BELL PUSH.
- BELL OUTLET.
- SIGN POINT.
- CLOCK OUTLET.
- PHOTOCELL

- 1 REFERENCE TO QUANTITY ex. 3No.
- 2 REFERENCE TO A DETAIL ex. DETAIL 2.
- 3 REFERENCE TO AN ELECTRICAL NOTE ex. NOTE 4.
- #.34 REFERENCE TO A STANDARD DRAWING Ex. STANDARD DRAWING No.34

- E CABLE NUMBER - REFER CABLE SCHEDULE FOR DETAILS.
- LUMINAIRE TYPE "B" - REFER LUMINAIRE SCHEDULE.

Refer to drawing no. 19034_505 for Floor Boxes
Power supply in the floor for Auditorium 01; Auditorium 02 and Qolloquium room.

Weatherproof Socket Outlet @ counter height.

Weatherproof Socket Outlet @ counter height.

300mm Wide Cable Basket, for Electronic services, in Ceiling Void.

10mm² 4 Core Cu PVC SWA PVC ECC Cable, burried in ground.

16mm² 4 Core Cu PVC SWA PVC ECC Cable, burried in ground.

Powerskirting to be mounted on underside of reception counter unit.

50mm Ø PVC Sleeve

Ceiling void containment :
P8000 Trunking (lighting - refer to lighting layout)
P8000 Trunking (small power)
150mm Wide Cable Ladder

150mm Wide Cable Ladder at high level in ceiling void.

2 x 50mm Ø Cores into soffit, to First Floor above.

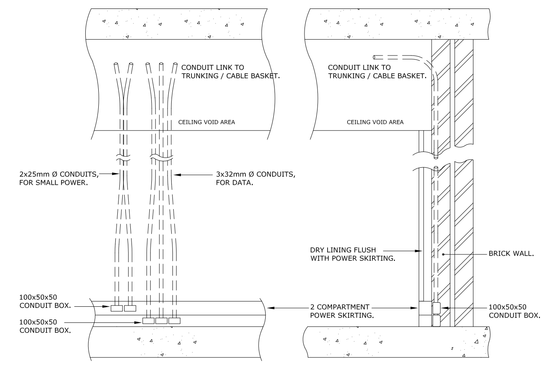
EXISTING AREA TO REMAIN

50mm Ø PVC Sleeve

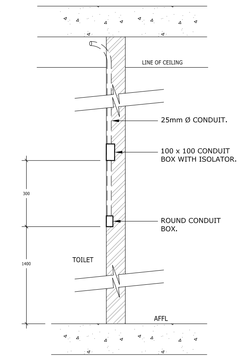
16mm² 4 Core Cu PVC SWA PVC ECC Cable, burried in ground, to link up to 1st floor DB-1BE.

EXISTING. BLOCK C

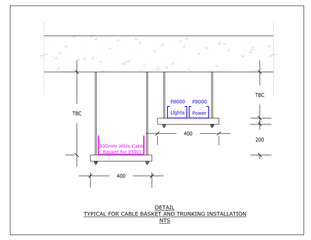
PROPOSED VISITORS PARKING



POWER SKIRTING CONDUITS – TAKE-OFFS
(NTS)



TYPICAL DETAIL OF HAND DRIER OUTLET POINT
(NTS)



TYPICAL FOR CABLE BASKET AND TRUNKING INSTALLATION
NTS

GENERAL NOTES

This drawing is issued for Electrical purposes only, and should be read in conjunction with the Electrical Specification. Setting out of Electrical and Electronic accessories are to be as indicated on Architects details.

Refer to Architects and Structural Drawings for all building dimensions, latest building revisions and services.

Do not scale this drawing.

Electrical Notes:

1. Conduits cast-in feeds, from ceiling void containment, to powerskirting: 3 x 25mm Ø (power) and 2 x 32mm Ø (voice/data).
2. 20A SP Isolator for Hydroboil. Exact position and height to be confirmed by Architect.
3. Isolator power supply for Airconditioning, in Ceiling Void. Exact position and height to be confirmed by Architect.
4. Weatherproof Isolator power supply for Airconditioning. Exact position and height to be confirmed by Architect.
5. 100mm x 50mm Conduit box @ 1000mm affl. for AC Controllers, 25mmØ Conduit to ceiling void.
6. Hand drier power supply, Isolator at 1700mm AFFL, outlet box at 1400mm AFFL.
7. 16A Dedicated SSO for AV Screen, linked back to Trunking in ceiling void.
8. 16A Dedicated SSO for AV Projector, linked back to Trunking in ceiling void.
9. Isolator power supply for Turnstile.
10. Dedicated SSO mounted @ 1700mm affl on wall in reception, for Fire Panel. (Refer to Detail drawing no. 19034_503)
11. Dedicated SSO mounted in ceiling void for Access Control. Positions to be confirmed by Architect.

P8000 TRUNKING AND CABLE BASKET MOUNTED IN CEILING VOID UNLESS OTHERWISE INDICATED.

CONNECTION OF EQIPMENT BY ELECTRICAL SUB-CONTRACTOR.

REV	DATE	BY	DESCRIPTION	CHK
T00	30/06/30	VT	For Tender Purposes	MK
0	15/05/20	VT	Original Issue	MK

REVISIONS

IBUA Consulting Engineers
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E-mail: ibua@ibua.co.za

PROJECT/SERVICES
Umalusi Existing Offices
Additions and Alterations

Electrical Services

TITLE
Ground Floor
Small Power Layout

ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	Oct'19	MK	1:100
				PAPER SIZE: A0

PROJECT No.	DRAWING No.	SHEET:	REV:
19034	200		T00

FILE: 19034_200 LAYERS:

NOTES: (1) - Contractor to ensure max distance between draw boxes 20 metres notwithstanding anything to contrary. (2) - Draw boxes required after every second 90 deg, bend or 180 deg. total of slow bends. (3) - All unwired conduits to be provided with draw wires. These will be withdrawn and checked at random. (4) - Cast In conduits to be spaced 35mm. minimum.

- 100x100 CONDUIT BOX.
- 100x100 CONDUIT BOX AT 500AFFL.
- 100x100 CONDUIT BOX AT 1400AFFL
- 100x50 CONDUIT BOX
- 100x50 CONDUIT BOX AT 300AFFL.
- 100x50 CONDUIT BOX AT 1400AFFL.
- ROUND CONDUIT BOX.
- CLUSTER BOX (SIZE AS NOTED)

- ROUND DRAW BOX
- 100x100 DRAW BOX
- 100x50 BOX BEHIND POWER SKIRTING
- CONDUIT TURNED UP ("D" FOR DOWN)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.

DR ROUND CONDUIT BOX FOR:
CAM DM - DOOR MONITOR
CAM - CAMERA
AA - ACCESS ALARM
AC - ACCESS CONTROL
CR - CARD READER
COM - COMMUNICATION/INTERCOM
BGM - BACK GROUND MUSIC
EL - ELECTRIC LOCK/STRIKE

- 20mm, DIA. CONDUIT.
- 25mm, DIA. CONDUIT.
- 32mm, DIA. CONDUIT.
- 50mm, DIA. CONDUIT.
- SECTION OF CONDUIT OMMITED FOR CLARITY.
- SWITCH
- TWIN AND EARTH CABLE ROUTE

- OH OVERHEAD CAST-IN
- IN OVERHEAD ON SURFACE OR LAID ON CEILING.
- FC FLOOR SLAB CAST-IN.
- FS FLOOR SURFACE (IN FLOOR VOID).
- POWER SKIRTING
- TRUNKING
- CABLE SLEEVE.
- CABLE TRAY/LADDER

- SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- TELEPHONE JUNCTION BOX.
- INTERCOM JUNCTION BOX.
- DATA/COMMS JUNCTION BOX.
- SECURITY, ETC. JUNCTION BOX
- DISTRIBUTION BOARD POSITION.
- DB-1 BOARD DESIGNATION NUMBER.

- 16A SANS 164-1 SWITCHED SOCKET-OUTLET (SSO).
- 16A SANS 164-1 DOUBLE SSO.
- 16A SANS 164-1 SSO ON PEDESTAL.
- 16A SANS 164-2 3 PIN SSO.
- 16A SANS 164-1 AND 164-2 COMBINATION SSO.
- 16A SANS 164-4 RED SSO (3rd SHAVED EARTH PIN)
- 16A SANS 164-1 RED SSO ON PEDESTAL
- 3 PHASE LAYDOWN SSO.
- 2 POLE ISOLATOR
- 3 POLE ISOLATOR
- 4 POLE ISOLATOR

- 6A SANS 164-3 UNSHIELDED SOCKET OUTLET.
- SINGLE LEVER ONE WAY LIGHT SWITCH.
- INTERMEDIATE LIGHT SWITCH
- TWO WAY LIGHT SWITCH
- MOTION SENSOR
- LIGHT SWITCH WITH MOTION SENSOR

- LINEAR LUMINAIRE
- BULKHEAD/DOWNLIGHTER, ETC.
- WALL MOUNTED LUMINAIRE
- POLE MOUNTED LUMINAIRE.

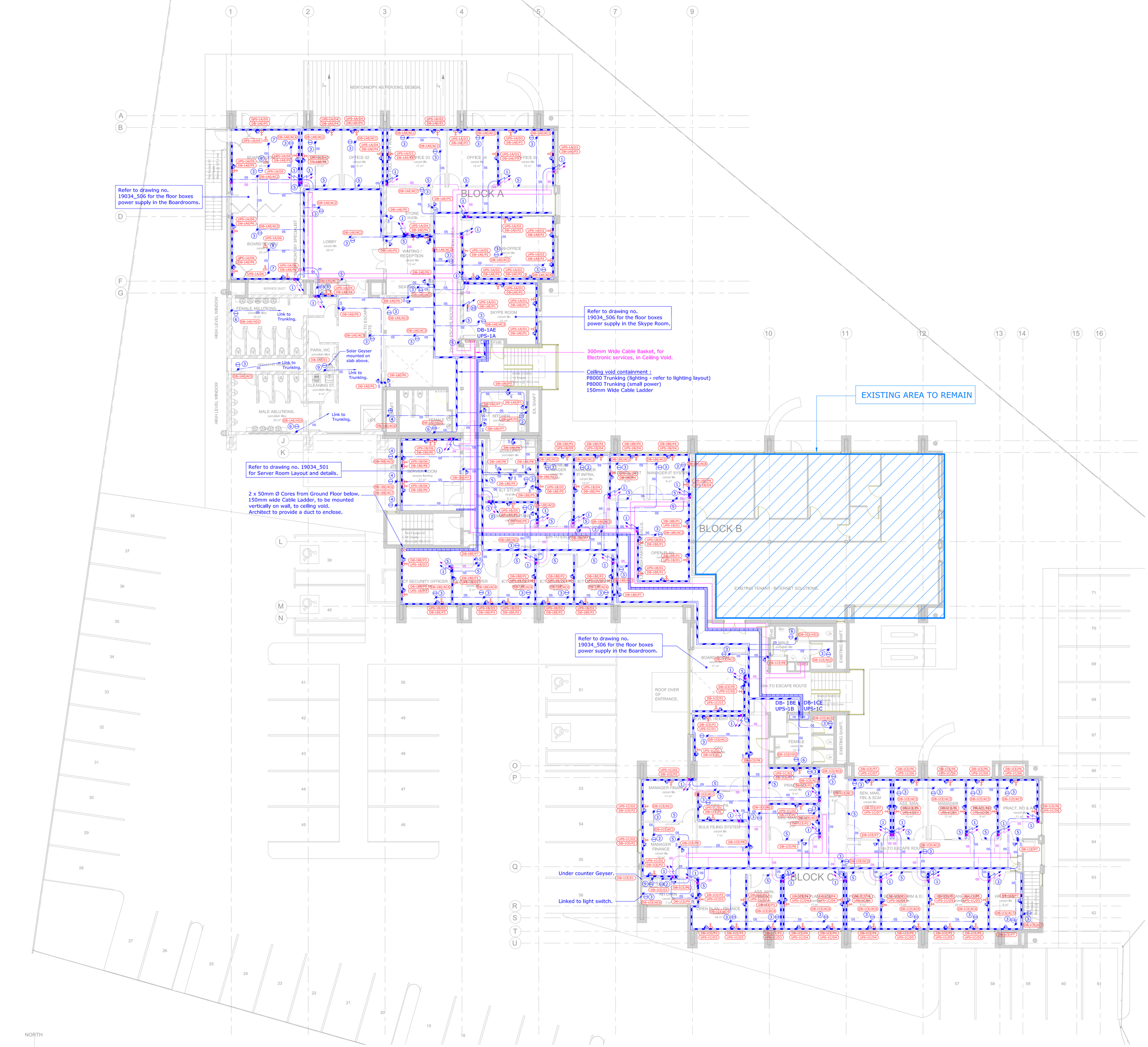
- TELEPHONE POINT.
- TELEPHONE POINT ON PEDESTAL.
- DIRECT OUTSIDE LINE TELEPHONE POINT (DAL) BOX.
- TV OUTLET.
- DATA/COMMS OUTLET.

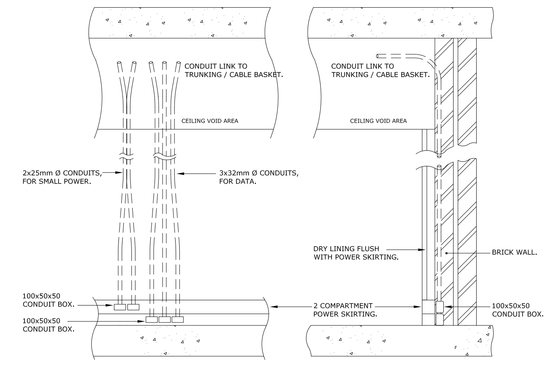
- BELL PUSH.
- BELL OUTLET.
- SIGN POINT.
- CLOCK OUTLET.
- PHOTOCELL

- REFERENCE TO QUANTITY i.e. 3No.
- REFERENCE TO A DETAIL i.e. DETAIL 2.
- REFERENCE TO AN ELECTRICAL NOTE i.e. NOTE 4.
- REFERENCE TO A STANDARD DRAWING i.e. STANDARD DRAWING No.34

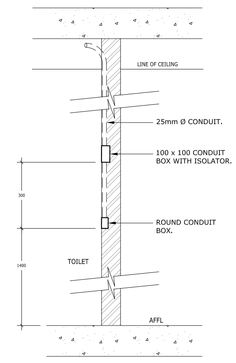
- CABLE NUMBER - REFER CABLE SCHEDULE FOR DETAILS.
- LUMINAIRE TYPE "B" - REFER LUMINAIRE SCHEDULE.

A0_MST_1

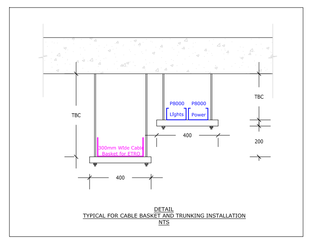




POWER SKIRTING CONDUITS + TAKE-OFFS (NTS)



TYPICAL DETAIL OF HAND DRIER OUTLET POINT (NTS)



DETAIL TYPICAL FOR CABLE BASKET & TRUNKING INSTALLATION N.T.S.

GENERAL NOTES

This drawing is issued for Electrical purposes only, and should be read in conjunction with the Electrical Specification. Setting out of Electrical and Electronic accessories are to be as indicated on Architects details.

Refer to Architects and Structural Drawings for all building dimensions, latest building revisions and services.

Do not scale this drawing.

All work to comply with relevant Standards, Codes of Practice, Specification and Regulations.

Electrical Notes:

1. Conduits cast-in feeds, from ceiling void containment, to powerskirting: 3 x 25mm Ø (power) and 2 x 32mm Ø (voice/data).
2. 20A SP Isolator for Hydrobolt. Exact position and height to be confirmed by Architect.
3. Isolator power supply for Airconditioning, in Ceiling Void. Exact position and height to be confirmed by Architect.
4. Weatherproof Isolator power supply for Airconditioning. Exact position and height to be confirmed by Architect.
5. 100mm x 50mm Conduit box @ 1000mm affl. for AC Controllers, 25mmØ Conduit to ceiling void.
6. Hand drier power supply, Isolator at 1700mm AFFL, outlet box at 1400mm AFFL.
7. 16A Dedicated SSO for AV Screen, linked back to Trunking in ceiling void.
8. 16A Dedicated SSO for AV Projector, linked back to Trunking in ceiling void.
9. 20A SP Isolator for Geyser. Exact position and height to be confirmed by Architect.
10. Cluster box @ 1500mm affl, linked to floor box, to consist of: 1 x UPS Power points 1 x Normal SSO 2 x Data points 1 x HDMI point
11. Dedicated SSO mounted in ceiling void for Access Control. Positions to be confirmed by Architect.

P8000 TRUNKING AND CABLE BASKET MOUNTED IN CEILING VOID UNLESS OTHERWISE INDICATED.

CONNECTION OF EQIPMENT BY ELECTRICAL SUB-CONTRACTOR.

NOTES: (1) - Contractor to ensure max distance between draw boxes 20 metres notwithstanding anything to contrary.

(2) - Draw boxes required after every second 90 deg, bend or 180 deg, total of slow bends.

(3) - All unwired conduits to be provided with draw wires. These will be withdrawn and checked at random.

(4) - Cast in conduits to be spaced 35mm. minimum.

- 100x100 CONDUIT BOX.
- 100x100 CONDUIT BOX AT 1400AFFL.
- 100x100 CONDUIT BOX AT 1400AFFL.
- 100x50 CONDUIT BOX
- 100x50 CONDUIT BOX AT 300AFFL.
- 100x50 CONDUIT BOX AT 1400AFFL.
- ROUND CONDUIT BOX.
- CLUSTER BOX (SIZE AS NOTED)

- ROUND DRAW BOX
- 100x100 DRAW BOX
- 100x50 BOX BEHIND POWER SKIRTING
- CONDUIT TURNED UP (↑) OR DOWN (↓)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.

- DH DOOR MONITOR
- CAM CAMERA
- AA ACCESS ALARM
- AC ACCESS CONTROL
- CR CARD READER
- COM COMMUNICATION/INTERCOM
- BGM BACK GROUND MUSIC
- EL ELECTRIC LOCK/STRIKE

- 20mm, DIA. CONDUIT.
- 25mm, DIA. CONDUIT.
- 32mm, DIA. CONDUIT.
- 50mm, DIA. CONDUIT.
- SECTION OF CONDUIT OMMITED FOR CLARITY.
- SURTEX
- TWIN AND EARTH
- CABLE ROUTE

- OHE OVERHEAD EARTHIN.
- OHS OVERHEAD ON SURFACE OR LAID ON CEILING.
- FC FLOOR SLAB CAST-IN.
- FS FLOOR SURFACE CN FLOOR VOID/S.
- POWER SKIRTING
- TRUNKING
- CABLE SLEEVE.
- CABLE TRAY/LADDER

- SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- TELEPHONE JUNCTION BOX.
- INTERCOM JUNCTION BOX.
- DATA/COMMS JUNCTION BOX.
- SECURITY, ETC. JUNCTION BOX
- DISTRIBUTION BOARD POSITION.
- DB-1 BOARD DESIGNATION NUMBER.

- 16A SANS 164-1 SWITCHED SOCKET OUTLET (SSO).
- 16A SANS 164-1 DOUBLE SSO.
- 16A SANS 164-1 SSO ON PEDESTAL.
- 16A SANS 164-2 3 PIN SSO.
- 16A SANS 164-1 AND 164-2 COMBINATION SSO.
- 16A SANS 164-4 RED SSO (3rd SHAVED EARTH PIN)
- 16A SANS 164-4 RED SSO ON PEDESTAL
- 3 PHASE C+TORN SSO.
- 2 POLE ISOLATOR
- 3 POLE ISOLATOR
- 4 POLE ISOLATOR

- 6A SANS 164-3 (WATERTIGHT) SOCKET OUTLET.
- SINGLE LEVER ONE WAY LIGHT SWITCH.
- INTERMEDIATE LIGHT SWITCH
- TWO WAY LIGHT SWITCH
- MOTION SENSOR
- LIGHT SWITCH WITH MOTION SENSOR

- LINEAR LUMINAIRE
- BULKHEAD/DOWNLIGHTER, ETC.
- WALL MOUNTED LUMINAIRES
- POLE MOUNTED LUMINAIRE.

- TELEPHONE POINT.
- TELEPHONE POINT ON PEDESTAL.
- DIRECT OUTSIDE LINE TELEPHONE POINT (CALL BOX).
- TV OUTLET.
- DATA/COMMS OUTLET.

- BELL PUSH.
- BELL OUTLET.
- SIGN POINT.
- CLOCK OUTLET.
- PHOTOCELL

- REFERENCE TO QUANTITY e.g. 3No.
- REFERENCE TO A DETAIL i.e. DETAIL 2.
- REFERENCE TO AN ELECTRICAL NOTE i.e. NOTE 4.
- REFERENCE TO A STANDARD DRAWING i.e. STANDARD DRAWING No.34

- CABLE NUMBER - REFER CABLE SCHEDULE FOR DETAILS.
- LUMINAIRE TYPE "B" - REFER LUMINAIRE SCHEDULE.

REV	DATE	BY	DESCRIPTION	CHK
T00	30/06/20	VT	For Tender Purposes	MK
0	15/05/20	VT	Original Issue	MK

REVISIONS

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PROJECT/SERVICES
Umalusi Existing Offices
Additions and Alterations

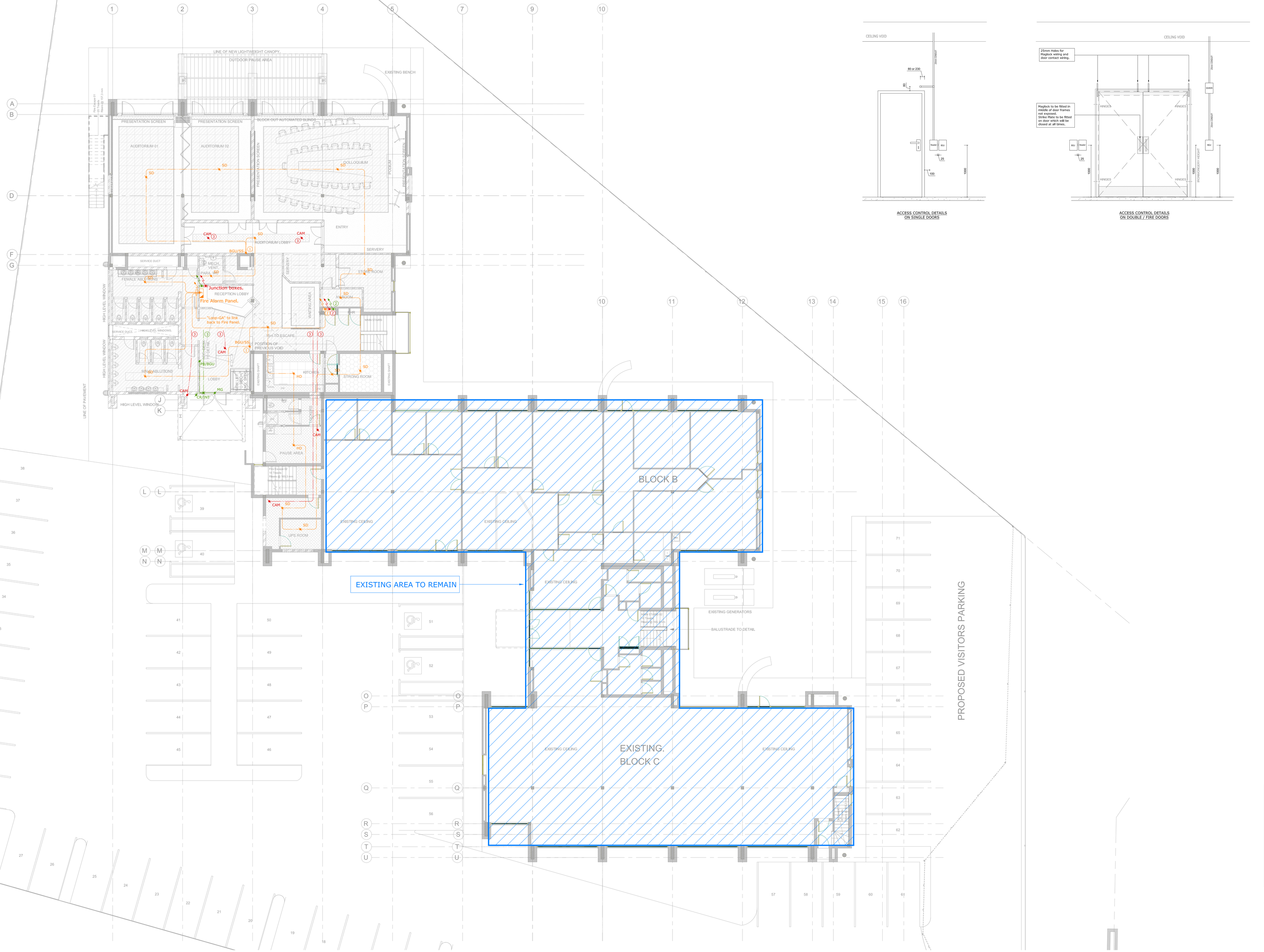
Electrical Services

TITLE
First Floor
Small Power Layout

ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	Oct'19	MK	1:100

PROJECT No.: 19034 | DRAWING No.: 201 | SHEET: | REV: T00
PAPER SIZE: A0
FILE:19034_201 LAYERS:

A0_MEST_1



ACCESS CONTROL DETAILS ON SINGLE DOORS

ACCESS CONTROL DETAILS ON DOUBLE / FIRE DOORS

GENERAL NOTES

This drawing is issued for Electrical purposes only, and should be read in conjunction with the Electrical Specification. Setting out of Electrical and Electronic accessories are to be as indicated on Architects details.

Refer to Architects and Structural Drawings for all building dimensions, latest building revisions and services.

Do not scale this drawing.

All work to comply with relevant Standards, Codes of Practice, Specification and Regulations.

CONDUIT NOTES:

1. Fire Break Glass unit mounted @ 1000mm affl and sounder mounted @ 1800mm affl.
2. 3 x 300mm x 300mm Junction Boxes for Electronic Services, mounted in riser cupboard.
3. Conduit links to Wire Mesh Basket in ceiling void.

REV	DATE	BY	DESCRIPTION	CHK
T00	30/06/20	VT	For Tender Purposes	MK
0	15/05/20	VT	Original Issue	MK

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PROJECT/SERVICES
Umalusi Existing Offices
Additions and Alterations

Electronic Services

TITLE
Ground Floor
Electronic Systems Conduit Layout

ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	Oct'19	MK	1:100

PAPER SIZE: A0

PROJECT NO.	DRAWING NO.	SHEET:	REV:
19034	300		T00

FILE:19034_300 LAYERS:

- ● 100x100 CONDUIT BOX.
- ● S 100x100 CONDUIT BOX AT 500AFFL.
- ● S 100x100 CONDUIT BOX AT 1400AFFL
- ● L 100x50 CONDUIT BOX
- ● L 100x50 CONDUIT BOX AT 500AFFL.
- ● L 100x50 CONDUIT BOX AT 1100AFFL.
- ● ROUND CONDUIT BOX.
- ■ ROUND DRAW BOX
- ■ S 100x100 DRAW BOX
- ■ P 100x50 BOX BEHIND POWER SKIRTING

- CONDUIT TURNED UP ("D" FOR DOWN)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.
- 150 SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- SECTION OF CONDUIT OMMITED FOR CLARITY.
- 20mm. DIA. CONDUIT.
- 25mm. DIA. CONDUIT.
- 32mm. DIA. CONDUIT.
- 50mm. DIA. CONDUIT.

- CABLE ROUTE
- CABLE SLEEVE.
- OC - OVERHEAD CAST-IN
- OS - OVERHEAD ON SURFACE OR LAID ON CEILING.
- FC - FLOOR SLAB CAST-IN.
- E - EXPOSED ON SURFACE
- POWER SKIRTING TRUNKING
- CABLE TRAY/LADDER

- REFERENCE TO QUANTITY i.e. 3No.
- REFERENCE TO A DETAIL i.e. DETAIL 2.
- REFERENCE TO AN ELECTRICAL NOTE i.e. NOTE 4.
- #34 REFERENCE TO A STANDARD DRAWING i.e. STANDARD DRAWING No.34
- CABLE NUMBER - REFER TO SCHEDULE FOR DETAILS

- TELEPHONE JUNCTION BOX.
- DATA JUNCTION BOX.
- DISTRIBUTION BOARD POSITION.
- TELEPHONE POINT.
- DATA/COMMS OUTLET.

- CCTV CAMERA
- CCTV CAMERA ON AUTO PANNING MOUNT
- CCTV CAMERA ON PAN & TILT MOUNT
- CCTV CAMERA ON AUTO PANNING IN DISCRETE OPAQUE DOME COVER
- CCTV CAMERA FIELD OF VIEW
- PASSIVE INFRARED CURTAIN DETECTOR

- INFRARED BEAM TRANSMITTER AND RECEIVER
- INFRARED OR ULTRASONIC MOTION DETECTOR
- DOOR MONITOR - FLATLINE OF SYMBOL FACES ATTACK SIDE
- X-RAY INSPECTION MACHINE OR LETTER/ PARCEL BOMB /EXPLOSIVE DETECTOR
- WALK THROUGH METAL DETECTOR

- P 220 VOLT POWER OUTLET FACILITY
- S SIGNAL OUTLET 2x4/4x4 FLUSH CONDUIT BOX.
- S SECURITY CONTROL PANEL/JUNCTION BOX
- ELECTRIC LOCK/STRIKE
- KEY SWITCH
- FP FLOOR PEDAL SWITCH
- SPRING RETURN PUSH BUTTON/LEVER RELEASE

DM - DOOR MONITOR
CAM - CAMERA
ER - ELECTRIC RELEASE
EL - ELECTRIC LOCK/STRIKE
MA - MOTION ALARM

- CR ACCESS CONTROL CARD READER
- CR POLE MOUNTED ACCESS CONTROL CARD READER
- VEHICLE BARRIER BOOM CONTROLLER

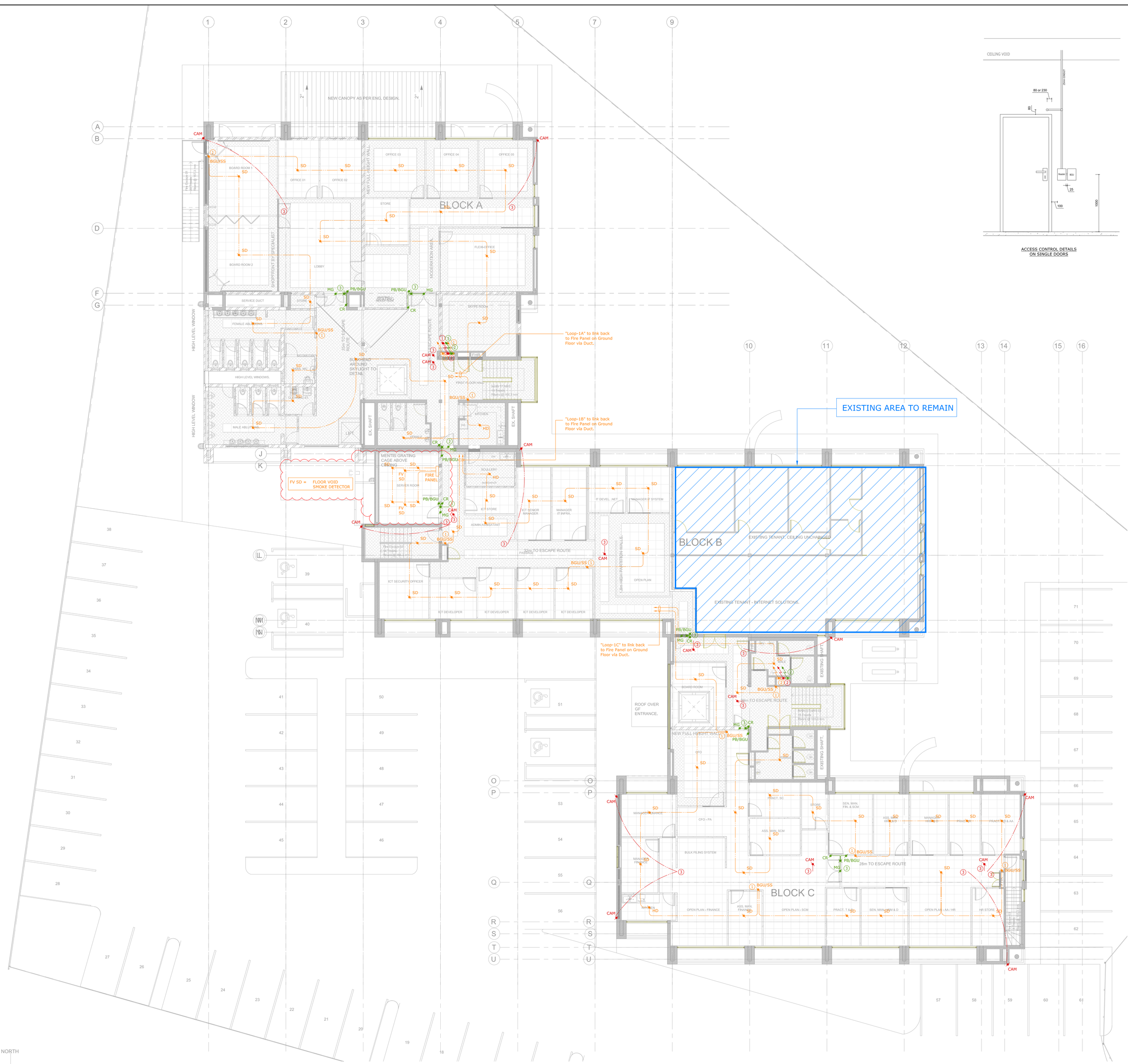
AA - ACCESS ALARM
AC - ACCESS CONTROL
CR - CARD READER
EO - EXIT OVERRIDE
AO - ALARM OVERRIDE

- C COMMUNICATION PANEL/JUNCTION BOX
- MJ INTERCOM MASTER STATION
- SJ INTERCOM SLAVE/SUBSTATION
- INTERCOM CALL PUSH BUTTON UNIT
- HORN/TRUMPET LOUDSPEAKER
- FM FM OR AM ANTENNA AS SPECIFIED
- SOUND EQUIPMENT - CABINET RACK
- CEILING FLUSH MOUNTED LOUDSPEAKER
- WALL MOUNTED LOUDSPEAKER
- TALK-BACK WALL MOUNTED LOUDSPEAKER
- COLUMN SPEAKER

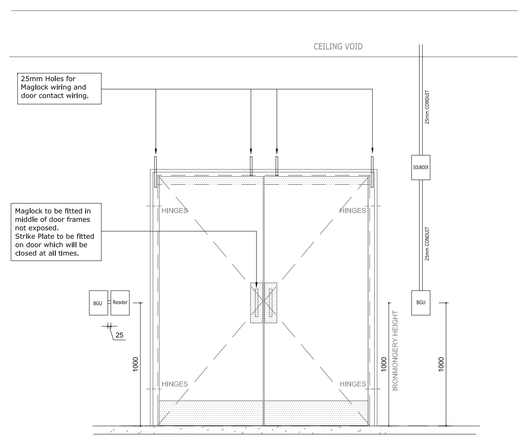
COM - COMMUNICATION/INTERCOM
BGM - BACK GROUND MUSIC SYSTEM WITH OR WITHOUT AUDIBLE VOICE REINFORCEMENT (P.A.)

- AT ATTENUATOR
- MJ MICROPHONE INPUT JACK IN 100x100 CONDUIT BOX
- SJ SPEAKER OUTPUT JACK IN 100x100 CONDUIT BOX
- STROKE SOUNDER

- CEILING MOUNTED MICROPHONE
- MICROPHONE
- RADIO MICROPHONE
- F FIRE ALARM PANEL/JUNCTION BOX
- ALARM BELL
- SMOKE IONISATION DETECTOR
- HEAT DETECTOR
- B BREAK GLASS UNIT



ACCESS CONTROL DETAILS ON SINGLE DOORS



ACCESS CONTROL DETAILS ON DOUBLE / FIRE DOORS

GENERAL NOTES

This drawing is issued for Electrical purposes only, and should be read in conjunction with the Electrical Specification. Setting out of Electrical and Electronic accessories are to be as indicated on Architects details.

Refer to Architects and Structural Drawings for all building dimensions, latest building revisions and services.

Do not scale this drawing.

All work to comply with relevant Standards, Codes of Practice, Specification and Regulations.

CONDUIT NOTES:

1. Fire Break Glass unit mounted @ 1000mm affl and sounder mounted @ 1800mm affl.
2. 3 x 300mm x 300mm Junction Boxes for Electronic Services, mounted in riser cupboard.
3. Conduit links to Wire Mesh Basket in ceiling void.

- 6 100x100 CONDUIT BOX.
- 5 100x100 CONDUIT BOX AT 500AFFL.
- 4 100x100 CONDUIT BOX AT 1400AFFL
- 1 100x50 CONDUIT BOX
- 1 100x50 CONDUIT BOX AT 500AFFL.
- 1 100x50 CONDUIT BOX AT 1100AFFL.
- ROUND CONDUIT BOX.
- ROUND DRAW BOX
- 2 100x100 DRAW BOX
- P 100x50 BOX BEHIND POWER SKIRTING

- CONDUIT TURNED UP ("D" FOR DOWN)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.
- SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- SECTION OF CONDUIT OMMITED FOR CLARITY. 20mm. DIA. CONDUIT. 25mm. DIA. CONDUIT. 32mm. DIA. CONDUIT. 50mm. DIA. CONDUIT.

- CABLE ROUTE
- CABLE SLEEVE.
- OC - OVERHEAD CAST-IN
- OS - OVERHEAD ON SURFACE OR LAID ON CEILING.
- FC - FLOOR SLAB CAST-IN.
- E - EXPOSED ON SURFACE
- POWER SKIRTING TRUNKING
- CABLE TRAY/LADDER

- REFERENCE TO QUANTITY i.e. 3No.
- REFERENCE TO A DETAIL i.e. DETAIL 2.
- REFERENCE TO AN ELECTRICAL NOTE i.e. NOTE 4.
- REFERENCE TO A STANDARD DRAWING i.e. STANDARD DRAWING No.34
- CABLE NUMBER - REFER TO SCHEDULE FOR DETAILS

- TELEPHONE JUNCTION BOX.
- DATA JUNCTION BOX.
- DISTRIBUTION BOARD POSITION.
- TELEPHONE POINT.
- DATA/COMMS OUTLET.

- CCTV CAMERA
- CCTV CAMERA ON AUTO PANNING MOUNT
- CCTV CAMERA ON PAN & TILT MOUNT
- CCTV CAMERA ON AUTO PANNING IN DISCRETE OPAQUE DOME COVER
- CCTV CAMERA FIELD OF VIEW
- PASSIVE INFRARED CURTAIN DETECTOR

- INFRARED BEAM TRANSMITTER AND RECEIVER
- INFRARED OR ULTRASONIC MOTION DETECTOR
- DOOR MONITOR - FLATLINE OF SYMBOL FACES ATTACK SIDE
- X-RAY INSPECTION MACHINE OR LETTER/ PARCEL BOMB /EXPLOSIVE DETECTOR
- WALK THROUGH METAL DETECTOR

- P 220 VOLT POWER OUTLET FACILITY
- S SIGNAL OUTLET 2x4/4x4 FLUSH CONDUIT BOX.
- S SECURITY CONTROL PANEL/JUNCTION BOX
- ELECTRIC LOCK/STRIKE
- KEY SWITCH
- FLOOR PEDAL SWITCH
- SPRING RETURN PUSH BUTTON/LEVER RELEASE

DM - DOOR MONITOR
CAM - CAMERA
ER - ELECTRIC RELEASE
EL - ELECTRIC LOCK/STRIKE
MA - MOTION ALARM

- CR ACCESS CONTROL CARD READER
- CR POLE MOUNTED ACCESS CONTROL CARD READER
- VEHICLE BARRIER BOOM CONTROLLER

AA - ACCESS ALARM
AC - ACCESS CONTROL
CR - CARD READER
EO - EXIT OVERRIDE
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- C COMMUNICATION PANEL/JUNCTION BOX
- INTERCOM MASTER STATION
- INTERCOM SLAVE/SUBSTATION
- INTERCOM CALL PUSH BUTTON UNIT
- HORN/TRUMPET LOUDSPEAKER
- CEILING FLUSH MOUNTED LOUDSPEAKER
- WALL MOUNTED LOUDSPEAKER
- TALK-BACK WALL MOUNTED LOUDSPEAKER
- COLUMN SPEAKER

- AT ATTENUATOR
- MJ MICROPHONE INPUT JACK IN 100x100 CONDUIT BOX
- SJ SPEAKER OUTPUT JACK IN 100x100 CONDUIT BOX
- FM FM OR AM ANTENNA AS SPECIFIED
- SOUND EQUIPMENT - CABINET RACK

COM - COMMUNICATION/INTERCOM
BGM - BACK GROUND MUSIC SYSTEM WITH OR WITHOUT AUDIBLE VOICE REINFORCEMENT (P.A.)
- STROKE SOUNDER

- CEILING MOUNTED MICROPHONE
- MICROPHONE
- RADIO MICROPHONE
- FIRE ALARM PANEL/JUNCTION BOX
- ALARM BELL
- SMOKE IONISATION DETECTOR
- HEAT DETECTOR
- B BREAK GLASS UNIT

REV	DATE	BY	DESCRIPTION	CHK
T00	30/06/20	VT	For Tender Purposes	MK
0	15/05/20	VT	Original Issue	MK

REVISIONS

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PROJECT/SERVICES
Umalusi Existing Offices Additions and Alterations

Electronic Services

TITLE
First Floor
Electronic Systems Conduit Layout

ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	Oct'19	MK	1:100

PAPER SIZE: A0

PROJECT No.	DRAWING No.	SHEET:	REV:
19034	301		T00

FILE: 19034_301 LAYERS:

A0_HST_1

NOTES

FIRST FLOOR

DB-1AE UPS-1A DB-UPS (SERVER ROOM) DB-1BE UPS-1B DB-1CE UPS-1C INTERNET SOLUTIONS

GROUND FLOOR

DB-GAE UPS-GA DB-UPS

DB-GE (DB-GB and DB-GC)

OUTSIDE

NEW 250KVA GENERATOR

CHANGE OVER

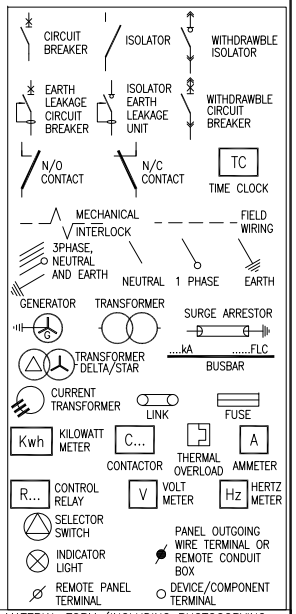
ESS | NON-ESS

NEW MAIN LV KIOSK (ESSENTIAL AND NON-ESSENTIAL)

DB-GH

EXISTING MAIN LV KIOSK (350A) TO REMAIN.

EXISTING 400V, 11Kv MINI TRANSFORMER, LOCATED ACCROSS THE ROAD.



REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: April'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 400 | SHEET: 1 of 1 | REV.: T00

File Name : 19034_400 Lyr:

PROJECT: Umalusi Existing Offices Additions and Alterations

DRAWING TITLE: Overall Distribution Board System Schematic Diagram

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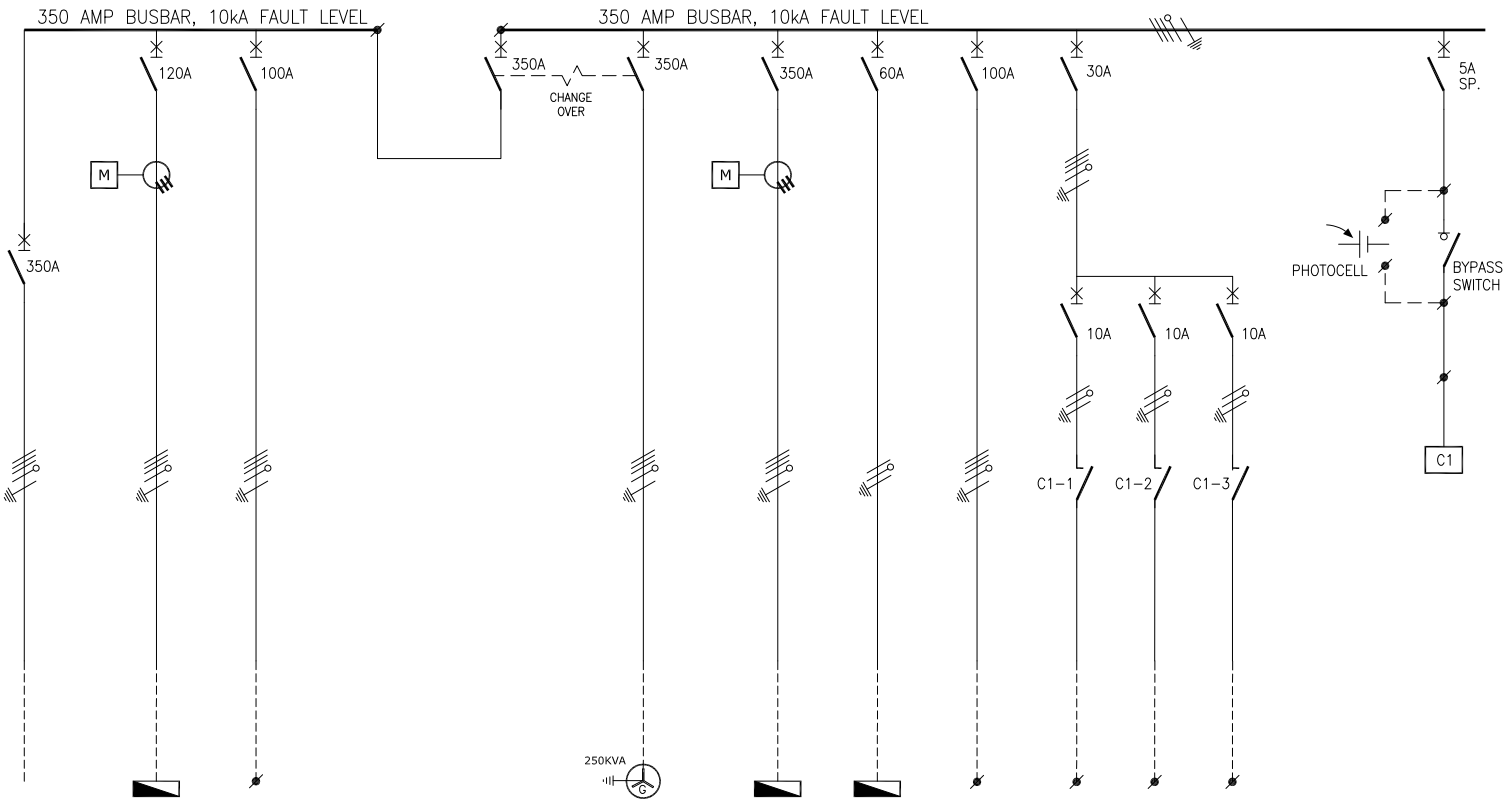
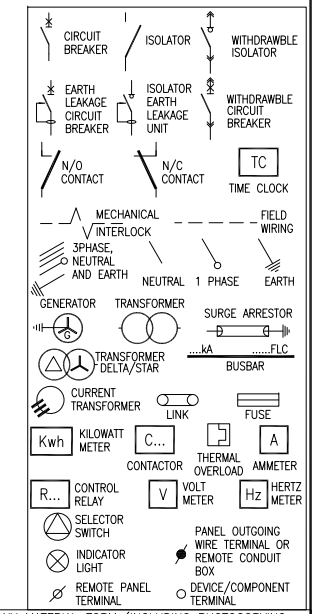


NOTES

1) DROPPERS/TAILS TO BE RATED FOR FULL i^2t LET THROUGH.
2) HARNESSED WIRING TO BE DERATED.
3) TUFFNOL BRACES ARE NOT TO BE USED ABOVE 10kA.
4) COPPER BUSBARS TO BE CONTINUOUS RATED.
5) SUFFICIENT SPACE REQUIRED FOR SAFE ACCESS FOR REWIRING.
6) EARTH AND NEUTRAL BARS TO BE EASILY ACCESIBLE.
7) ALL CIRCUIT BREAKERS TO BE FITTED WITH TERMINAL SHIELD ON LIVE AND LOAD SIDES.
8) ENCLOSURE TO BE IP65.
9) PHASING RWB, TOP TO BOTTOM, LEFT TO RIGHT, BACK TO FRONT.
10) INTERNAL TEMP TO BE LIMITED TO 5° ABOVE AMBIANT, MAX 40°C.
11) ALL CIRCUITS TO BE LABELED.
12) 25% SPARE SPACE. SPARE SPACES ARE TO BE FITTED WITH COPPER BUSBAR TAILS CONNECTED TO DROPPER BUSBARS TO ALLOW INSTALLATIONOF CIRCUIT BREAKERS WITH A MINIMAL SHUTDOWN PERIOD.
13) DB TO BE FITTED WITH A4 LEGEND CARD HOLDER WITH STANDARD IBUYA A4 LEGEND CARD.
14) EACH CIRCUIT TO BE LABELED WITH DETAILED DESCRIPTION OF CONNECTED DEVICE.
15) EXTERNAL EARTH STUD MOUNTED ADJACENT CABLE ENTRY.

INCOMING CABLE	-BOTTOM
OUTGOING CIRCUITS	-BOTTOM
COLOUR	-ORANGE RED (ESSENTIAL)
MOUNTING	-FLOOR STANDING
ACCESS	-FRONT
PROTECTIVE DEVICES	-SCHNEIDER/CBI
MCCB'S	-COMPACT NSX
MCB's (standard loads)	-TYPE C
MCB's (HVAC loads)	-TYPE D



REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	401	1 of 1	T00

File Name : 19034_401 Lyr:

PROJECT:

Umalusi Existing Offices Additions and Alterations

DRAWING TITLE:

Main LV Kiosk (Non-Essential and Essential) Single Line Diagram

IBUYA Consulting Engineers
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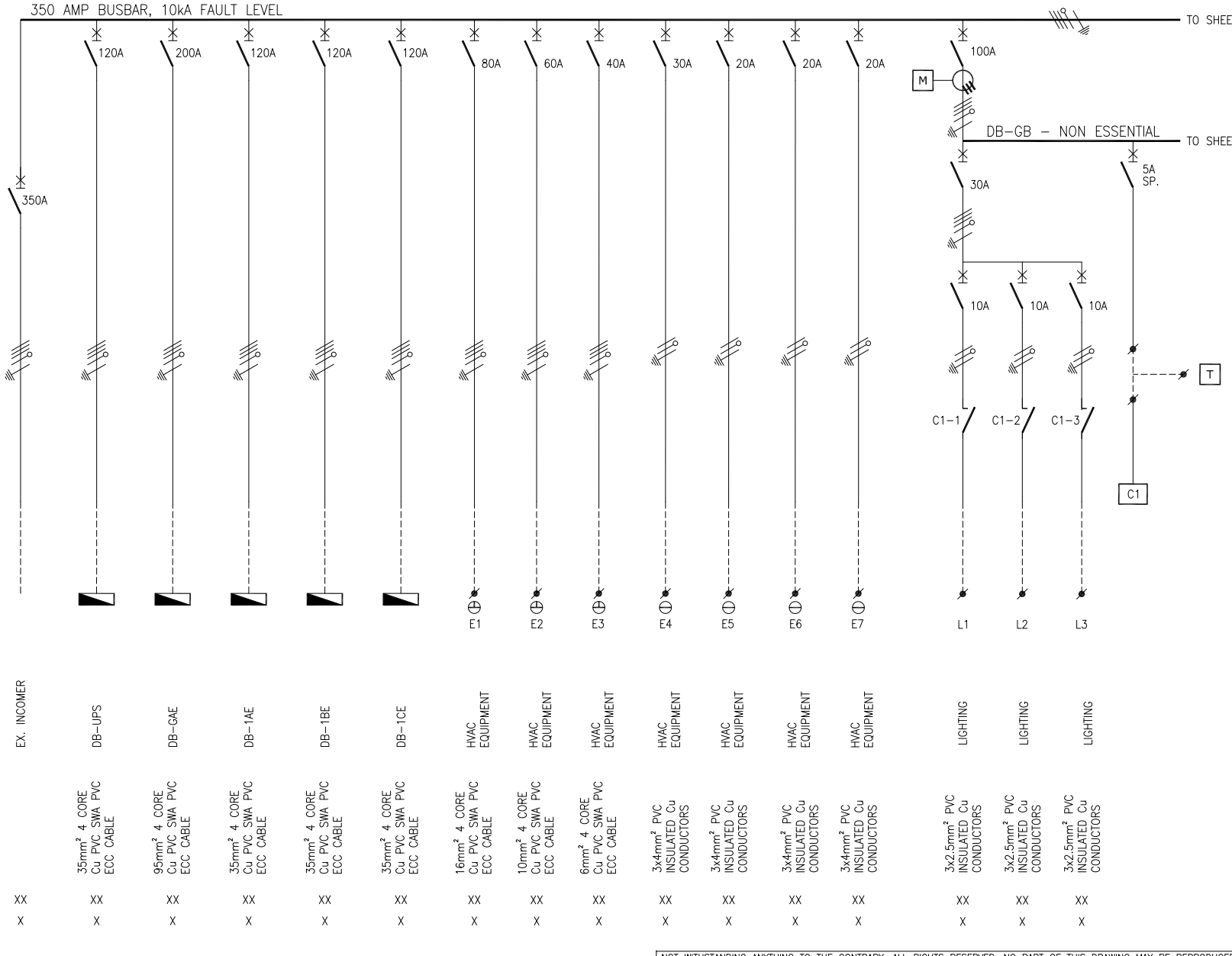

NOTES

1) DROPPERS/TAILS TO BE RATED FOR FULL i^2t LET THROUGH.
2) HARNESSED WIRING TO BE DERATED.
3) TUFFNOL BRACES ARE NOT TO BE USED ABOVE 10kA.
4) COPPER BUSBARS TO BE CONTINUOUS RATED.
5) SUFFICIENT SPACE REQUIRED FOR SAFE ACCESS FOR REWIRING.
6) EARTH AND NEUTRAL BARS TO BE EASILY ACCESIBLE.
7) ALL CIRCUIT BREAKERS TO BE FITTED WITH TERMINAL SHIELD ON LIVE AND LOAD SIDES.
8) ENCLOSURE TO BE IP54.
9) PHASING RWB, TOP TO BOTTOM, LEFT TO RIGHT, BACK TO FRONT.
10) INTERNAL TEMP TO BE LIMITED TO 5° ABOVE AMBIANT, MAX 40°C.
11) ALL CIRCUITS TO BE LABELED.
12) 25% SPARE SPACE. SPARE SPACES ARE TO BE FITTED WITH COPPER BUSBAR TAILS CONNECTED TO DROPPER BUSBARS TO ALLOW INSTALLATIONOF CIRCUIT BREAKERS WITH A MINIMAL SHUTDOWN PERIOD.
13) DB TO BE FITTED WITH A4 LEGEND CARD HOLDER WITH STANDARD IBUYA A4 LEGEND CARD.
14) EACH CIRCUIT TO BE LABELED WITH DETAILED DESCRIPTION OF CONNECTED DEVICE.
15) EXTERNAL EARTH STUD MOUNTED ADJACENT CABLE ENTRY.

INCOMING CABLE	-BOTTOM
OUTGOING CIRCUITS	-TOP/BOTTOM
COLOUR	-RED (ESSENTIAL)
MOUNTING	-FLOOR STANDING
ACCESS	-FRONT
PROTECTIVE DEVICES	-SCHNEIDER/CBI
MCCB'S	-COMPACT NSX
MCB's (standard loads)	-TYPE C
MCB's (HVAC loads)	-TYPE D

REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: April'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 402 | SHEET: 1 of 5 | REV.: T00

File Name : 19034_402 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-GE
Single Line Diagram

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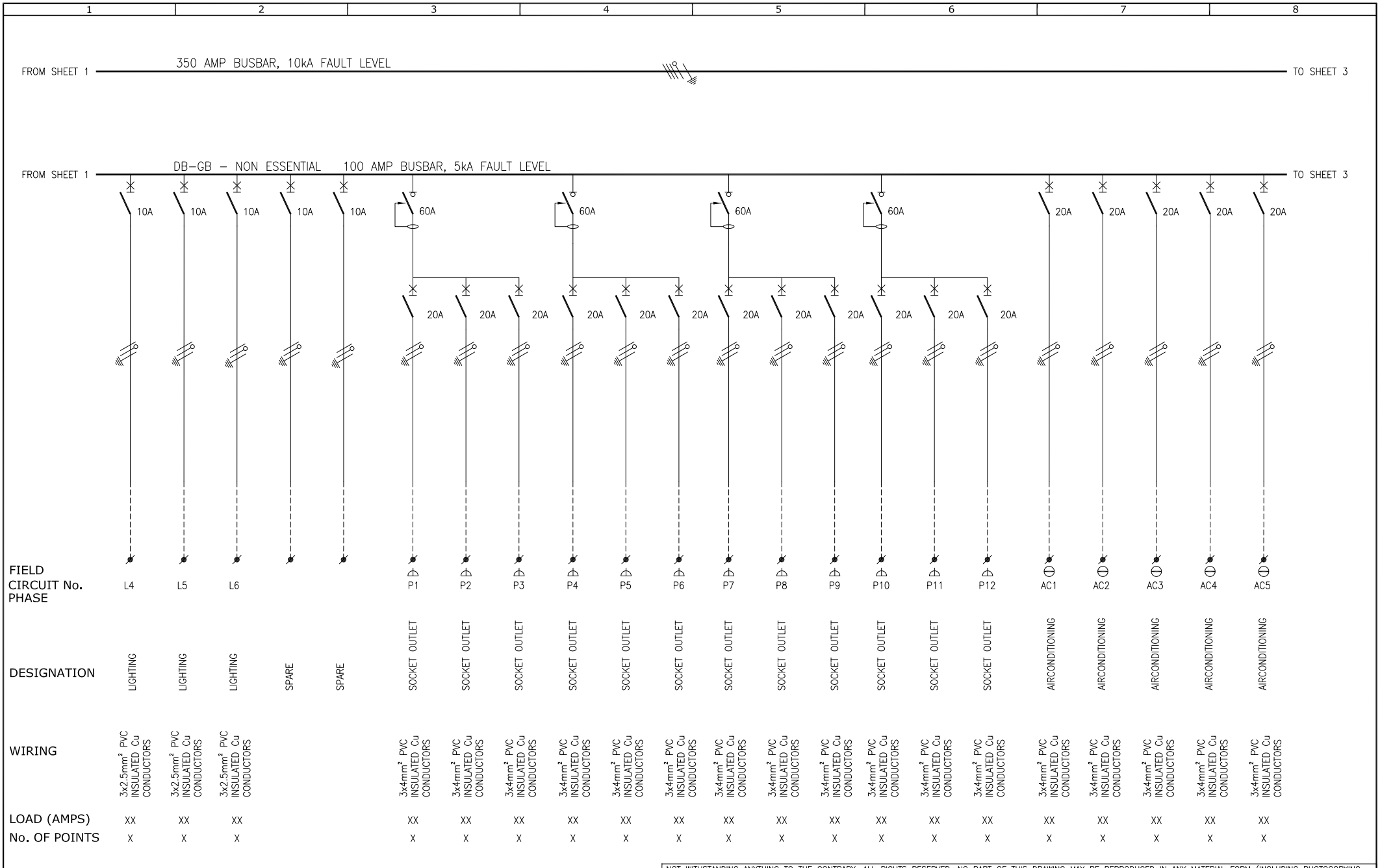

REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: April'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 402 | SHEET: 2 of 5 | REV.: T00

File Name : 19034_402 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-GE
Single Line Diagram

IBUYA Consulting Engineers
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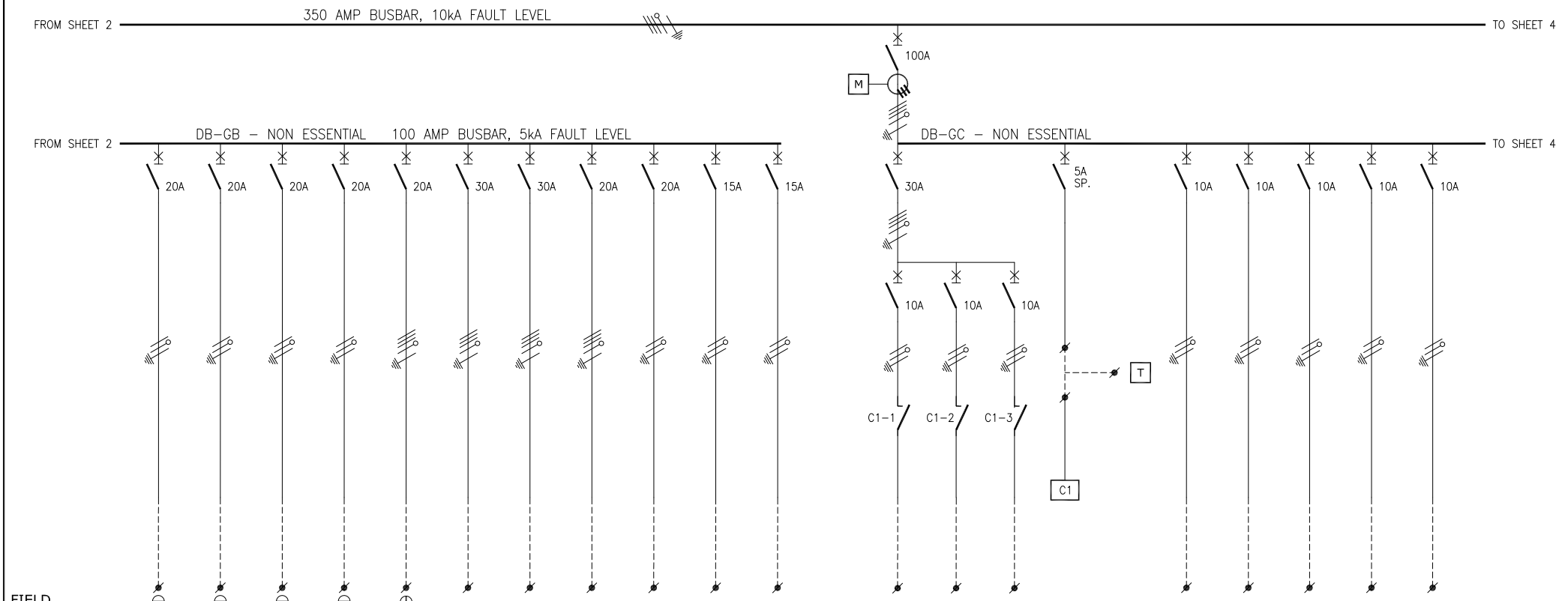


REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

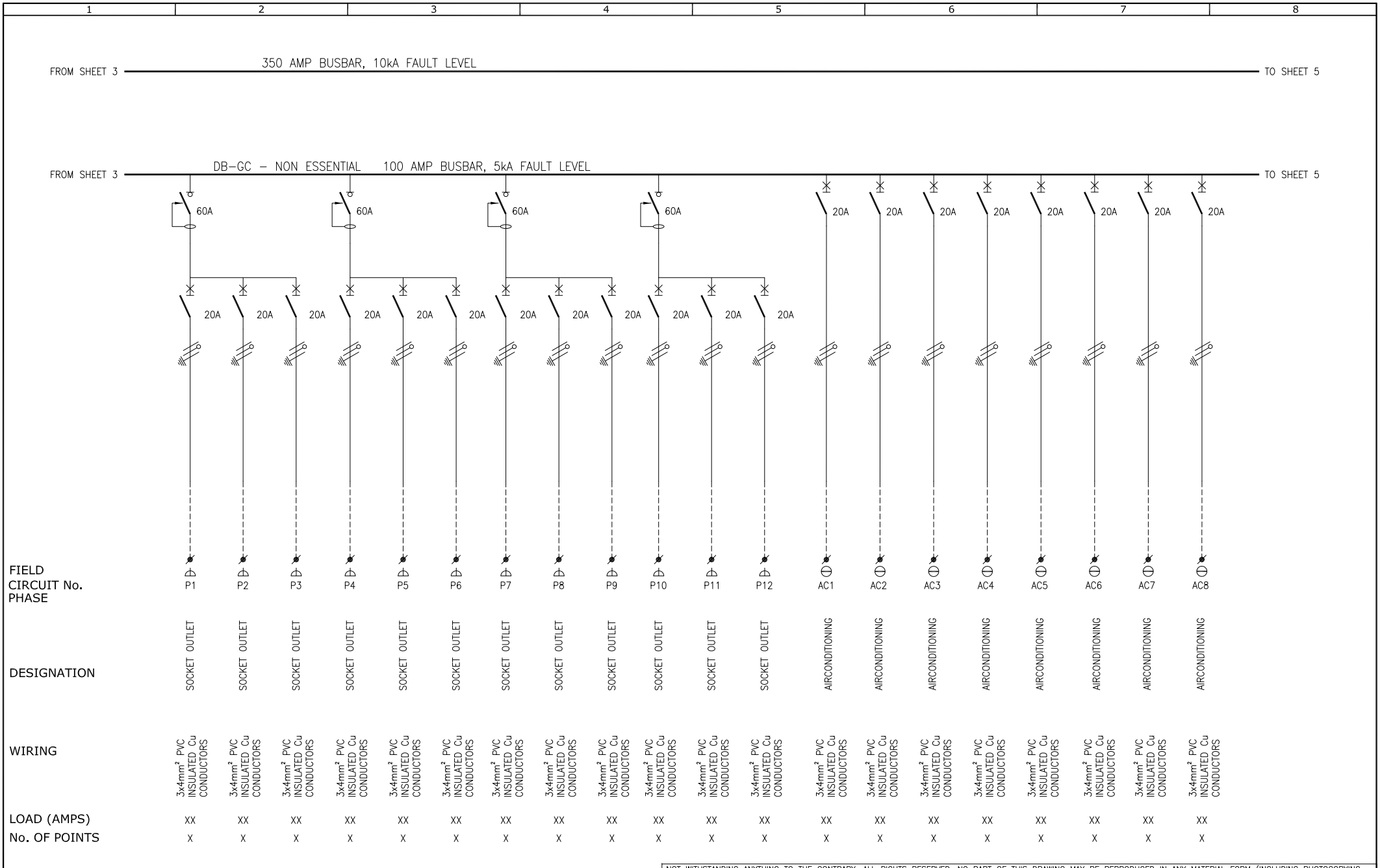
PROJECT No.	DRAWING No.	SHEET:	REV.
19034	402	3 of 5	T00

File Name : 19034_402 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-GE
Single Line Diagram

IBUYA Consulting Engineers
"POWERING DEVELOPMENT"
BLOCK D
ESSEX PARK
46 ESSEX TERRACE
WESTVILLE
P.O. BOX 1692
WANDSBECK 3631
TEL: +27 (031) 2667831
FAX: +27 (031) 2667831
E-mail: ibuya@ibuya.co.za



REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	402	4 of 5	T00

File Name : 19034_402 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-GE
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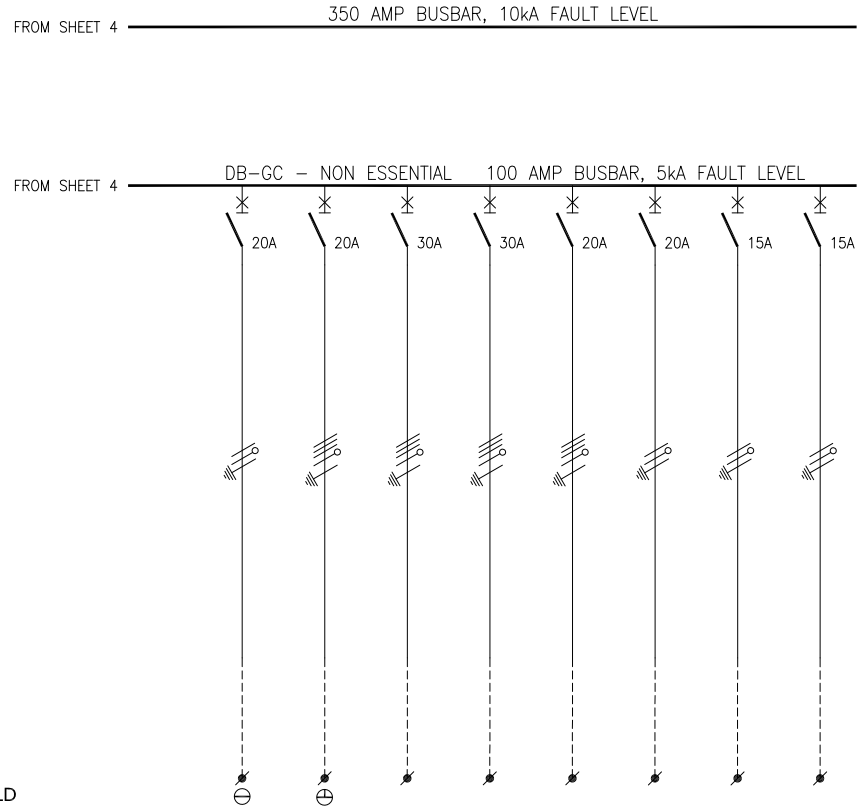

REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	402	5 of 5	T00

File Name : 19034_402 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

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DB-GE
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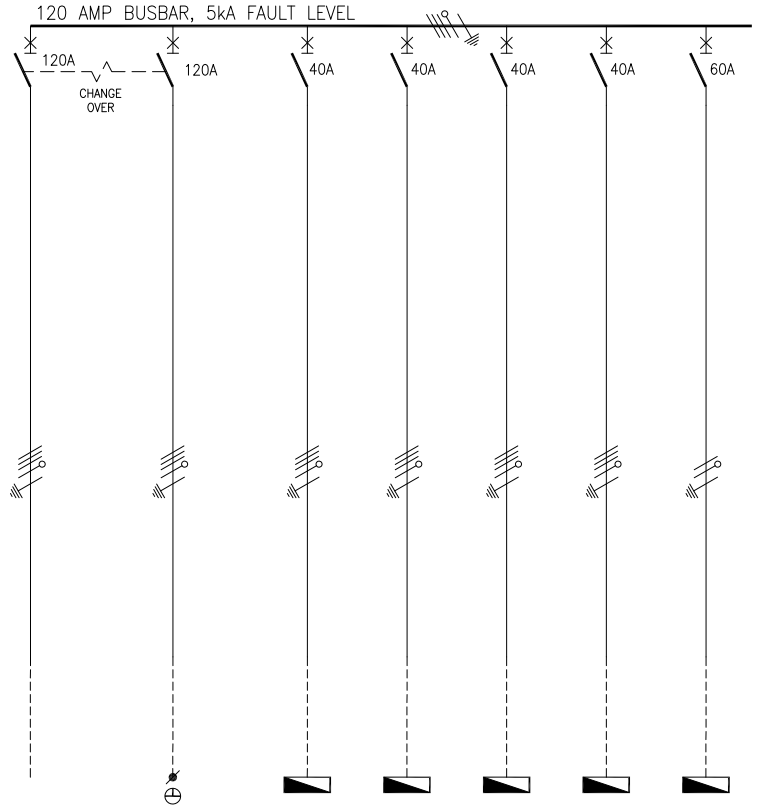
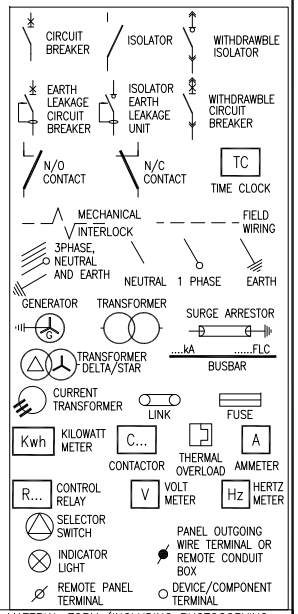


NOTES

1) DROPPERS/TAILS TO BE RATED FOR FULL i^2t LET THROUGH.
2) HARNESSED WIRING TO BE DERATED.
3) TUFFNOL BRACES ARE NOT TO BE USED ABOVE 10kA.
4) COPPER BUSBARS TO BE CONTINUOUS RATED.
5) SUFFICIENT SPACE REQUIRED FOR SAFE ACCESS FOR REWIRING.
6) EARTH AND NEUTRAL BARS TO BE EASILY ACCESIBLE.
7) ALL CIRCUIT BREAKERS TO BE FITTED WITH TERMINAL SHIELD ON LIVE AND LOAD SIDES.
8) ENCLOSURE TO BE IP54.
9) PHASING RWB, TOP TO BOTTOM, LEFT TO RIGHT, BACK TO FRONT.
10) INTERNAL TEMP TO BE LIMITED TO 5° ABOVE AMBIANT, MAX 40°C.
11) ALL CIRCUITS TO BE LABELED.
12) 25% SPARE SPACE. SPARE SPACES ARE TO BE FITTED WITH COPPER BUSBAR TAILS CONNECTED TO DROPPER BUSBARS TO ALLOW INSTALLATIONOF CIRCUIT BREAKERS WITH A MINIMAL SHUTDOWN PERIOD.
13) DB TO BE FITTED WITH A4 LEGEND CARD HOLDER WITH STANDARD IBUYA A4 LEGEND CARD.
14) EACH CIRCUIT TO BE LABELED WITH DETAILED DESCRIPTION OF CONNECTED DEVICE.
15) EXTERNAL EARTH STUD MOUNTED ADJACENT CABLE ENTRY.

INCOMING CABLE	-TOP
OUTGOING CIRCUITS	-TOP/BOTTOM
COLOUR	-BLUE
MOUNTING	-SURFACE MOUNTED
ACCESS	-FRONT
PROTECTIVE DEVICES	-SCHNEIDER/CBI
MCCB'S	-COMPACT NSX
MCB's (standard loads)	-TYPE C
MCB's (HVAC loads)	-TYPE D



REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER: MK	DRAWN: VT	DATE: April'20	SCALE: nts	CHKD.
			PAPER SIZE: A3	
PROJECT No.: 19034	DRAWING No.: 403	SHEET: 1 of 1	REV.: T00	

File Name : 19034_403 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-UPS
Single Line Diagram

IBUYA Consulting Engineers
"POWERING DEVELOPMENT"

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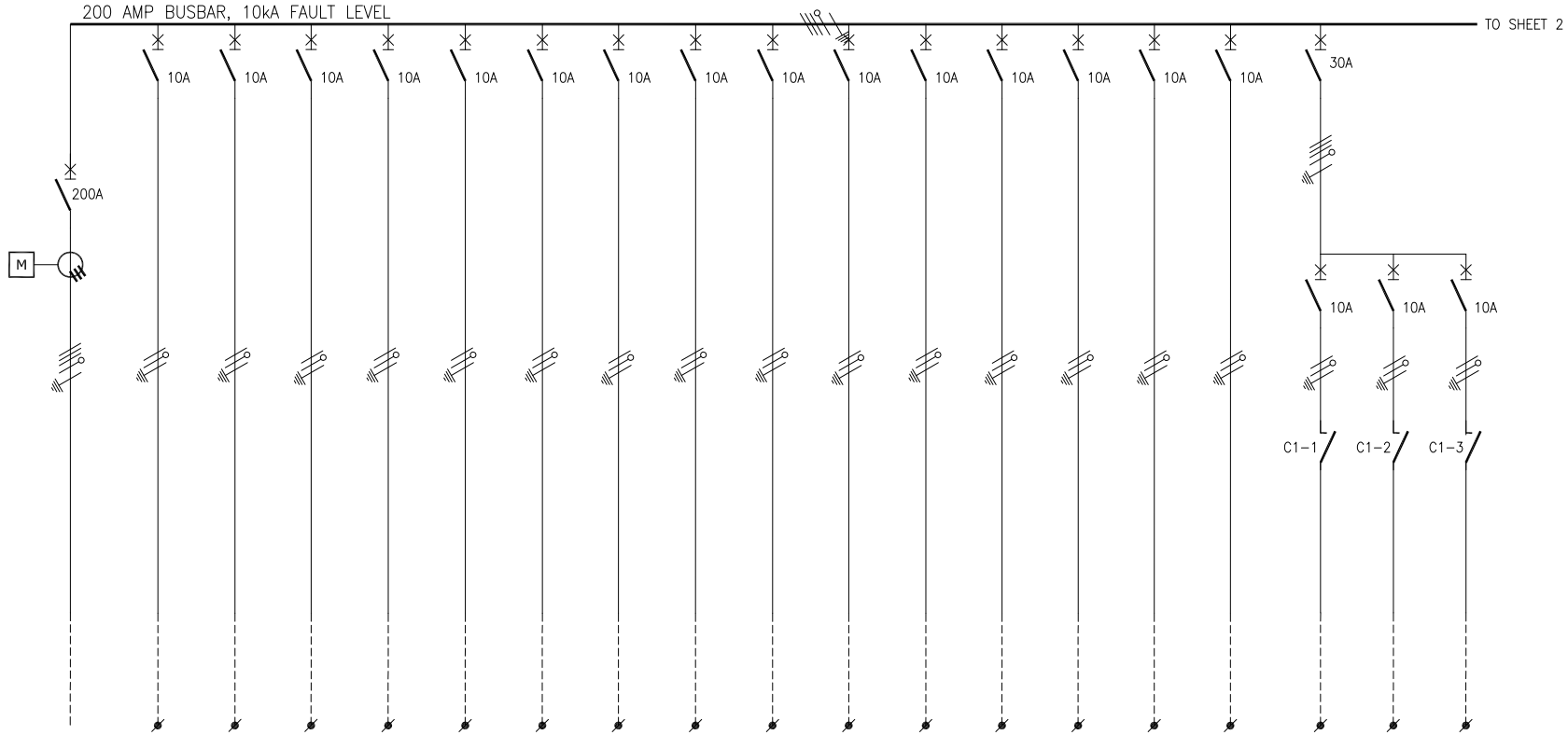

NOTES

1) DROPPERS/TAILS TO BE RATED FOR FULL i^2t LET THROUGH.
2) HARNESSED WIRING TO BE DERATED.
3) TUFFNOL BRACES ARE NOT TO BE USED ABOVE 10kA.
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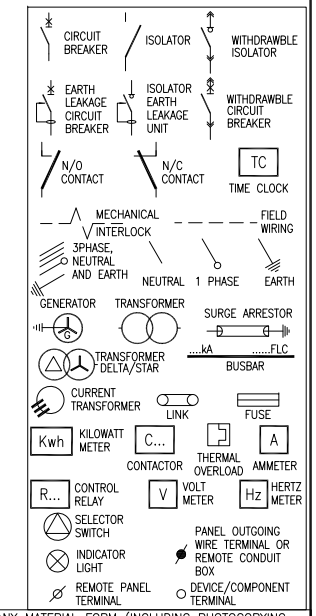
13) DB TO BE FITTED WITH A4 LEGEND CARD HOLDER WITH STANDARD IBUYA A4 LEGEND CARD.
14) EACH CIRCUIT TO BE LABELED WITH DETAILED DESCRIPTION OF CONNECTED DEVICE.
15) EXTERNAL EARTH STUD MOUNTED ADJACENT CABLE ENTRY.

INCOMING CABLE	-TOP/BOTTOM
OUTGOING CIRCUITS	-TOP
COLOUR	-RED (ESSENTIAL)
	-BLUE (UPS)
MOUNTING	-FLOOR STANDING
ACCESS	-FRONT
PROTECTIVE DEVICES	-SCHNEIDER/CBI
MCCB'S	-COMPACT NSX
MCB's (standard loads)	-TYPE C
MCB's (HVAC loads)	-TYPE D



REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	404	1 of 4	T00

File Name : 19034_404 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-GAE / UPS-GA
Single Line Diagram

IBUYA Consulting Engineers
"POWERING DEVELOPMENT"
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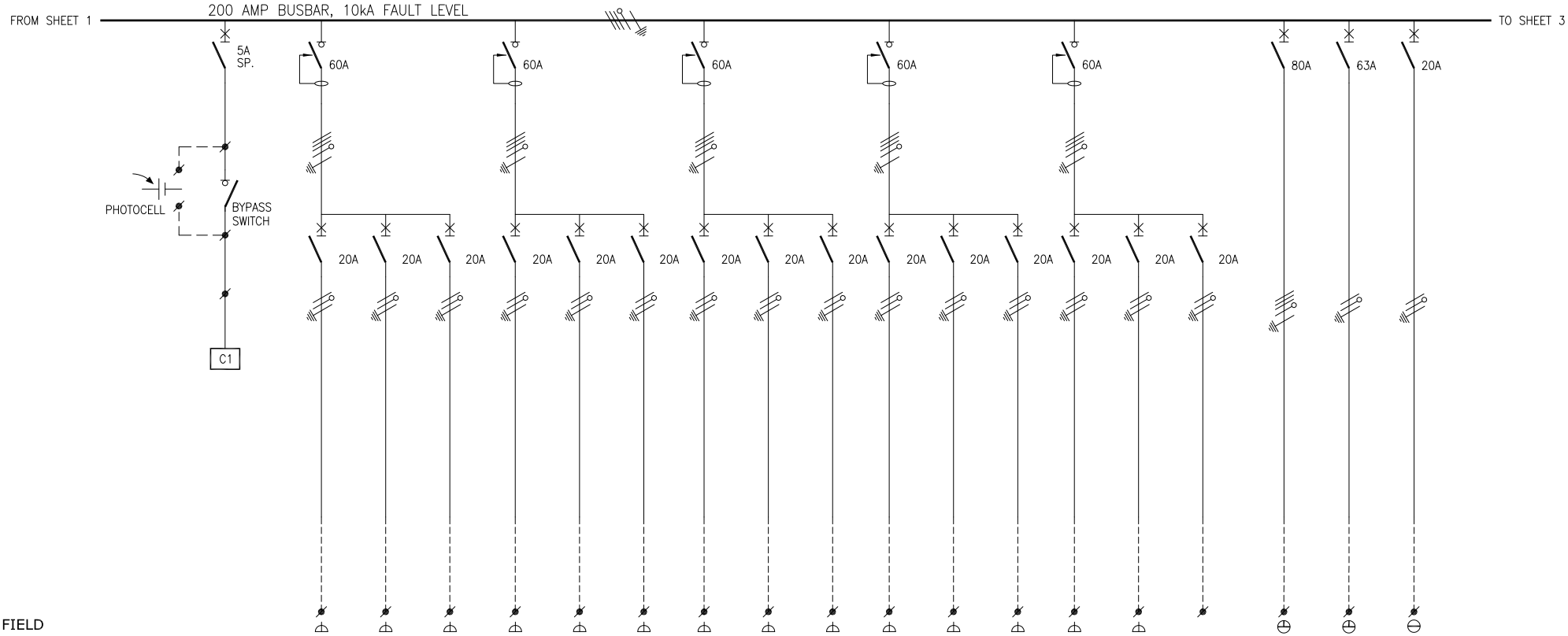

REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: April'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 404 | SHEET: 2 of 4 | REV.: T00

File Name : 19034_404 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-GAE / UPS-GA
Single Line Diagram

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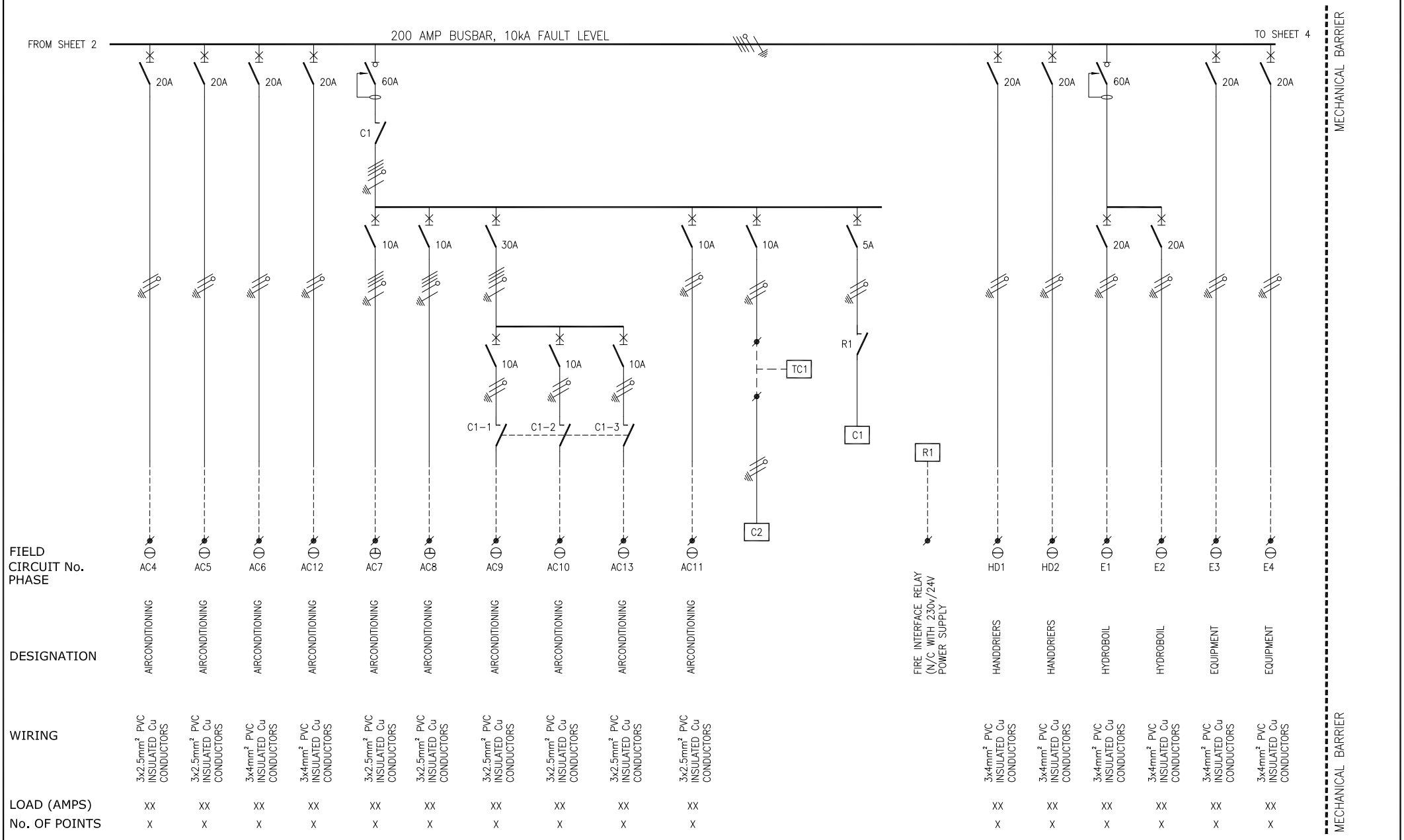

REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: April'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 404 | SHEET: 3 of 4 | REV.: T00

File Name : 19034_404 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-GAE / UPS-GA
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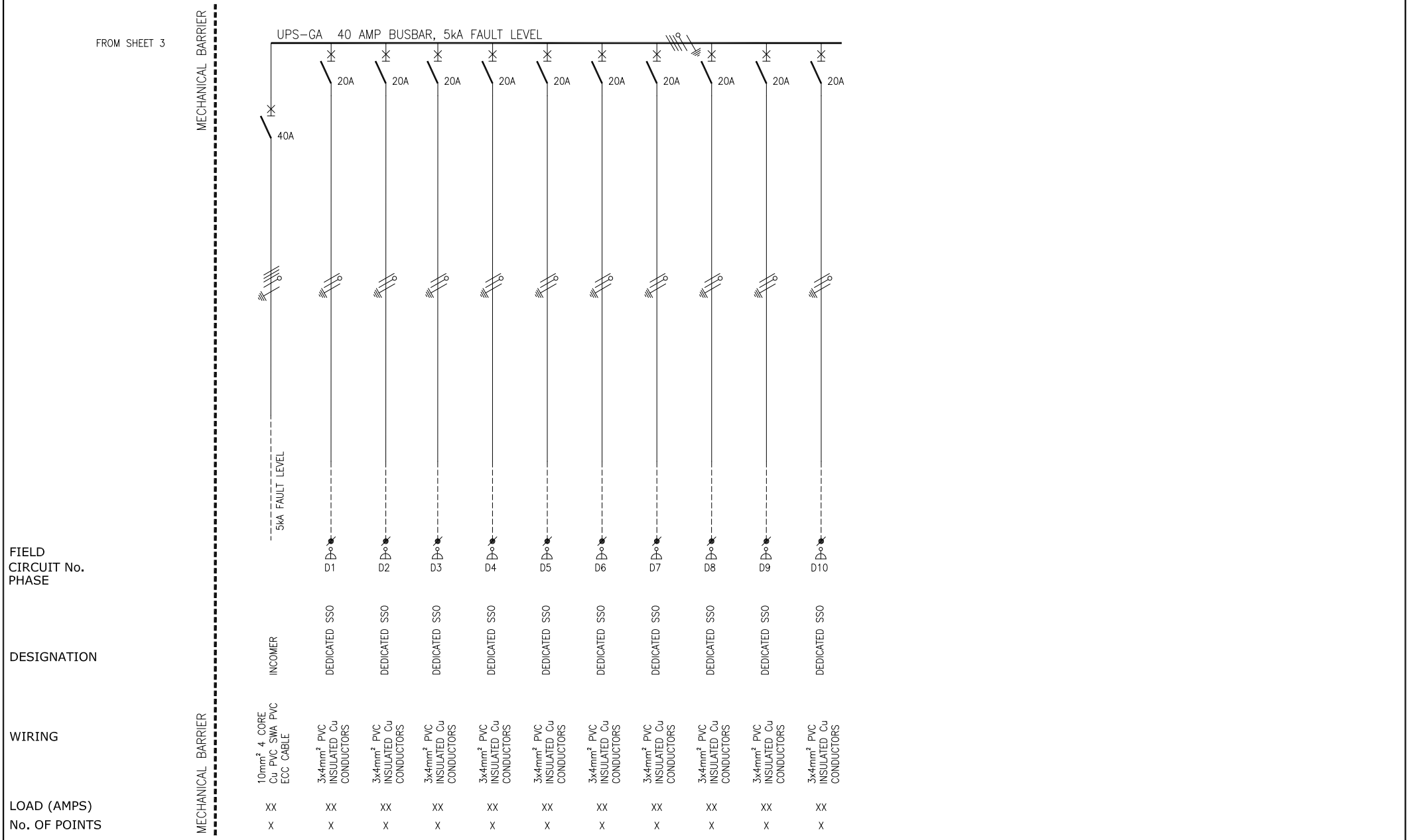

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T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	404	4 of 4	T00

File Name : 19034_404 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-GAE / UPS-GA
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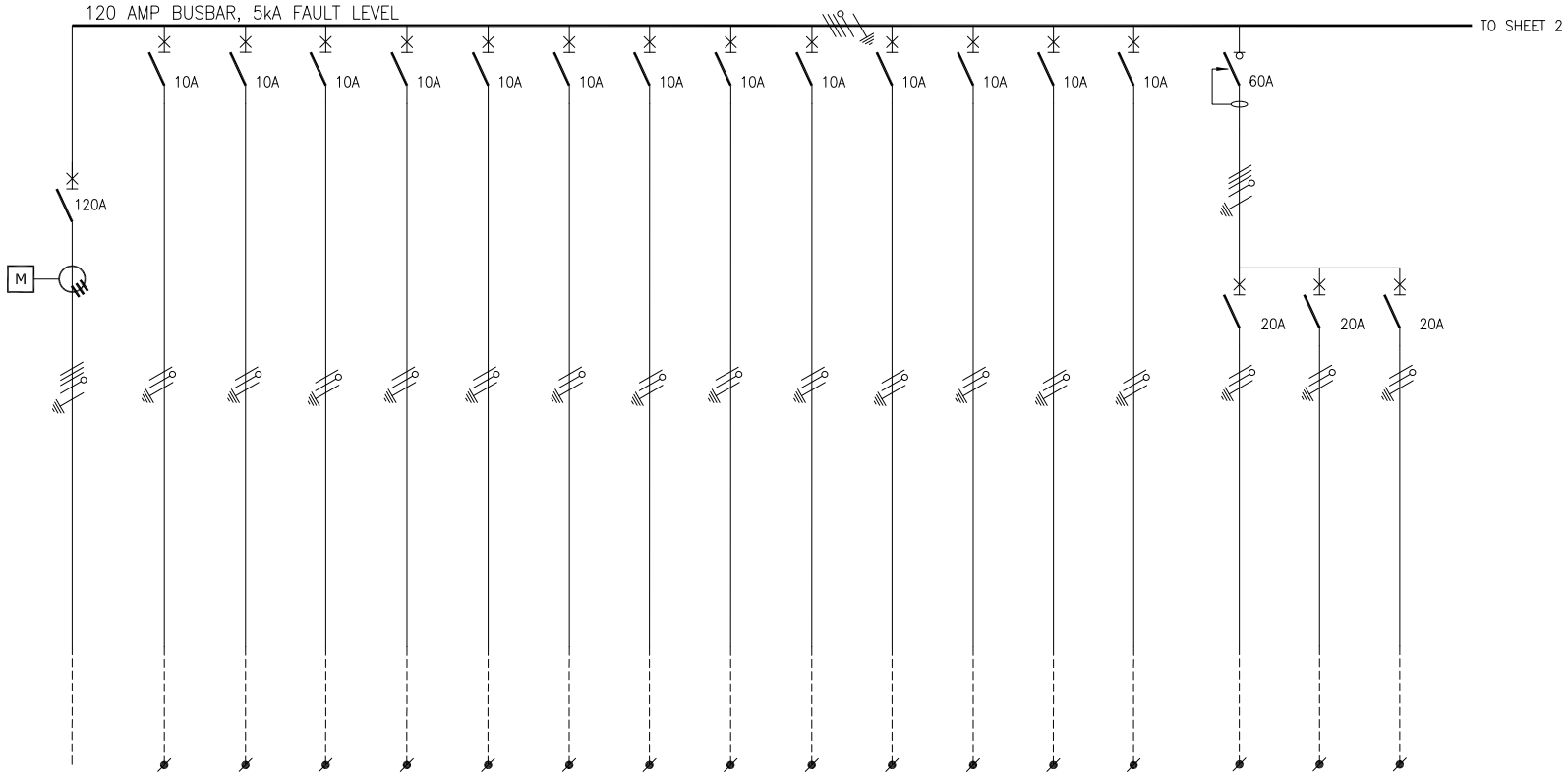

NOTES

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ACCESS	-FRONT
PROTECTIVE DEVICES	-SCHNEIDER/CBI
MCCB'S	-COMPACT NSX
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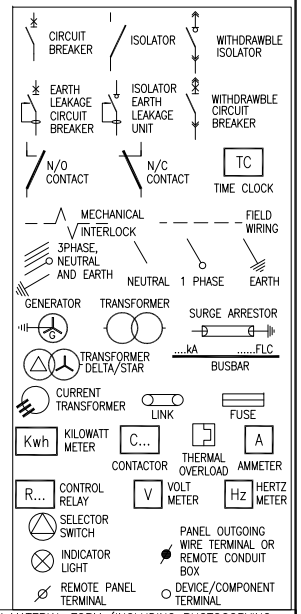

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T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	405	1 of 3	T00

File Name : 19034_405 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-1AE / UPS-1A
Single Line Diagram

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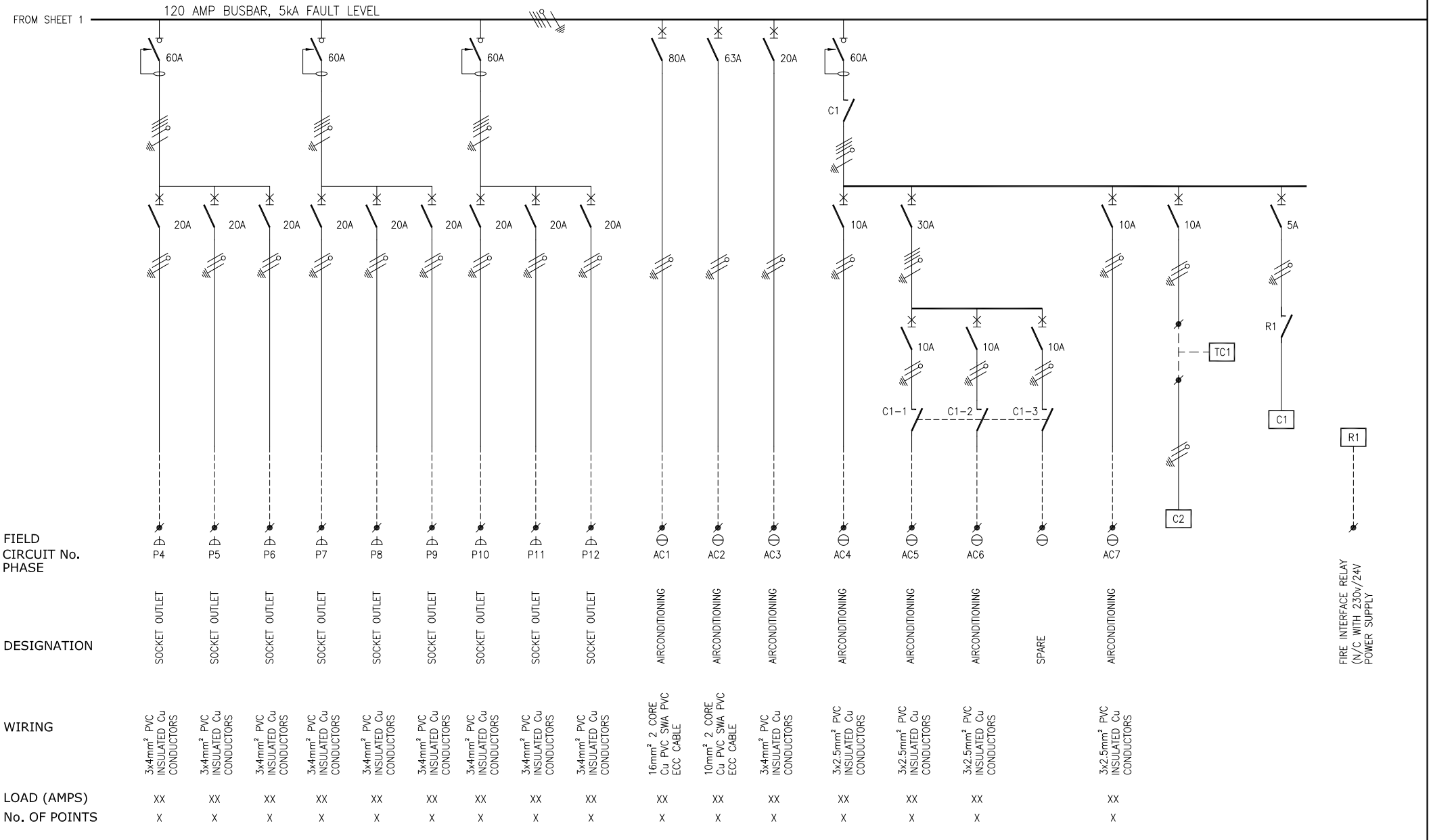

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ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	405	2 of 3	T00

File Name : 19034_405 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-1AE / UPS-1A
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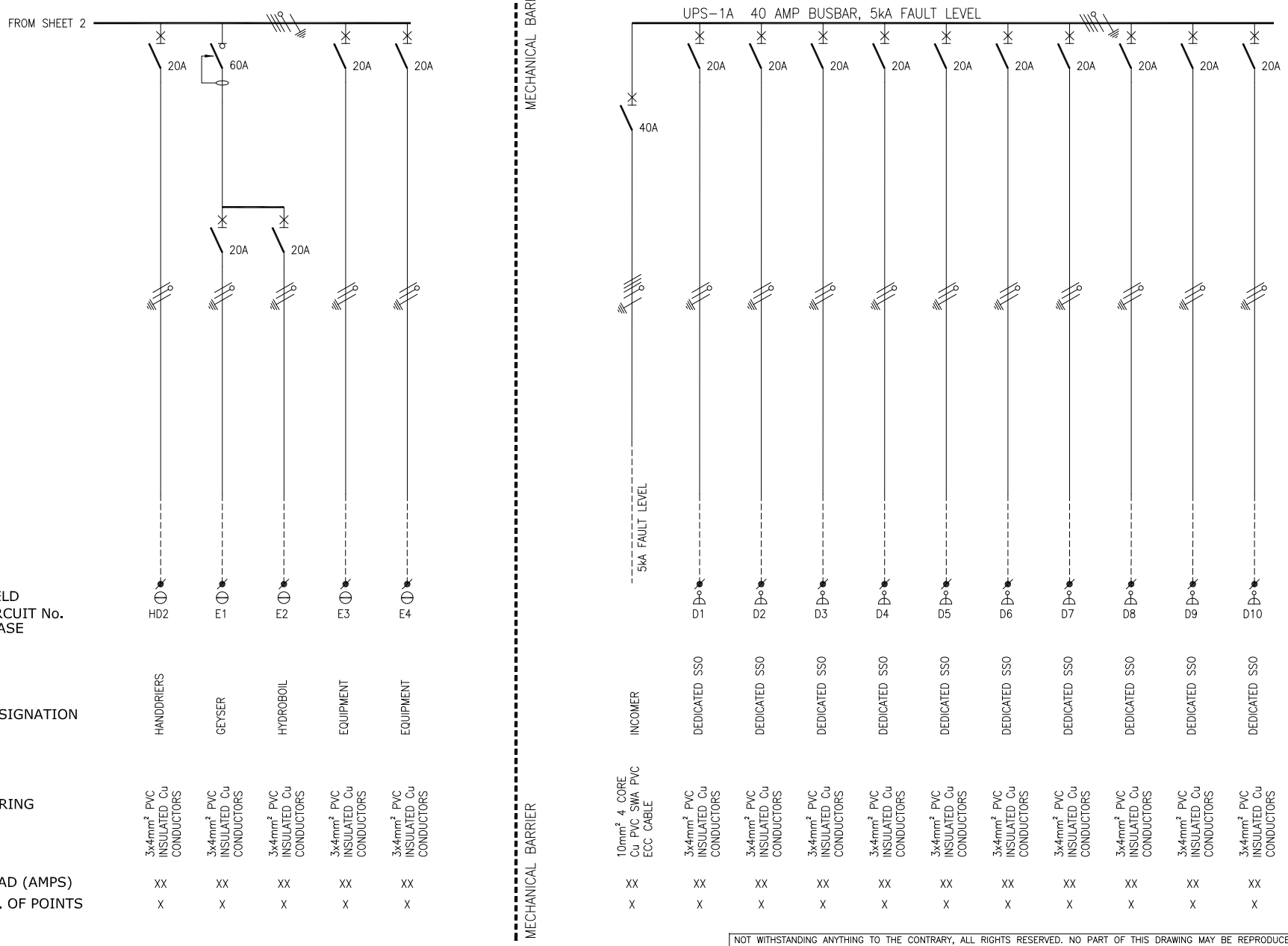

REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: April'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 405 | SHEET: 3 of 3 | REV.: T00

File Name : 19034_405 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-1AE / UPS-1A
Single Line Diagram

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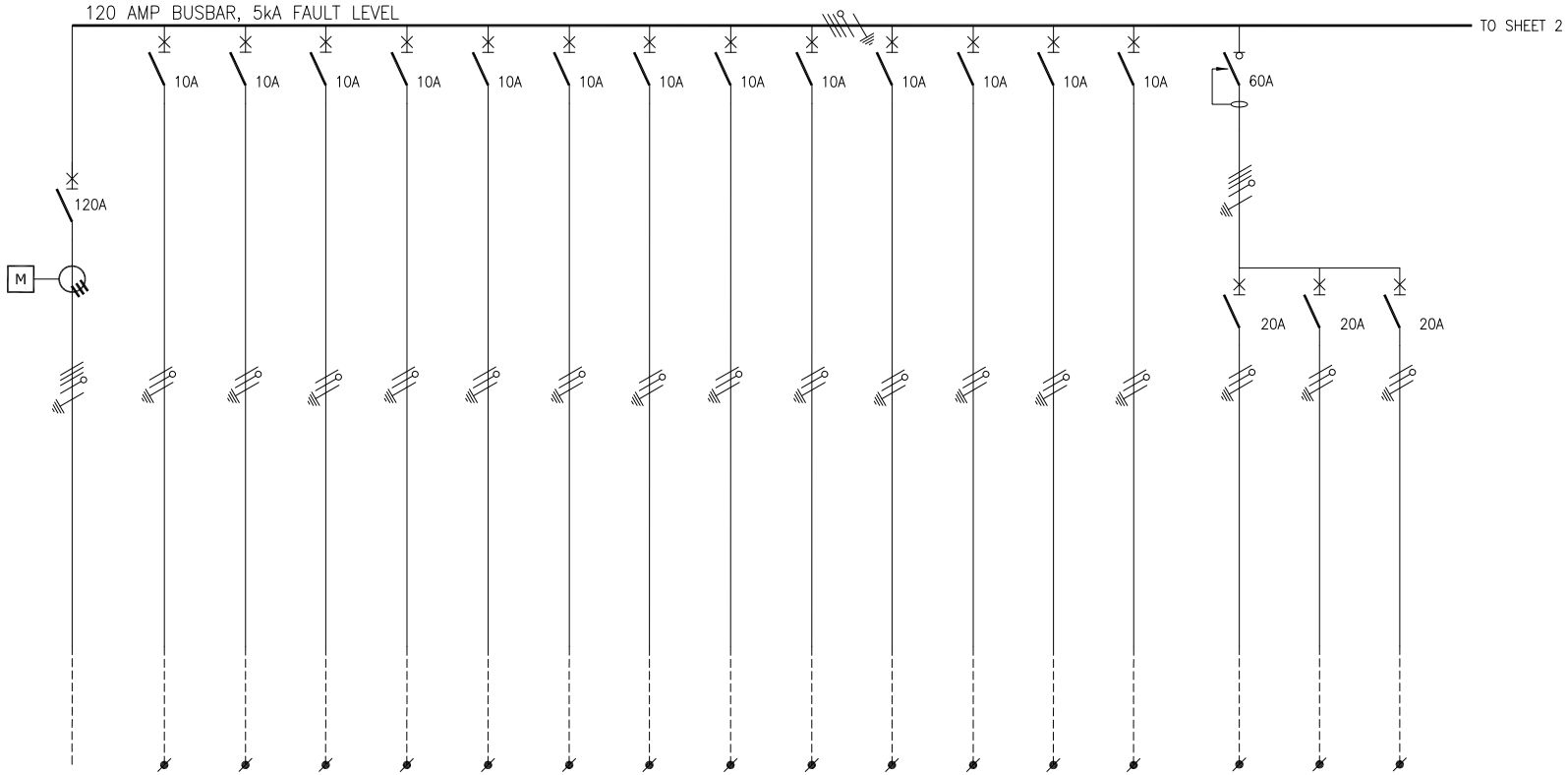

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OUTGOING CIRCUITS	-TOP
COLOUR	-RED (ESSENTIAL)
	-BLUE (UPS)
MOUNTING	-FLOOR STANDING
ACCESS	-FRONT
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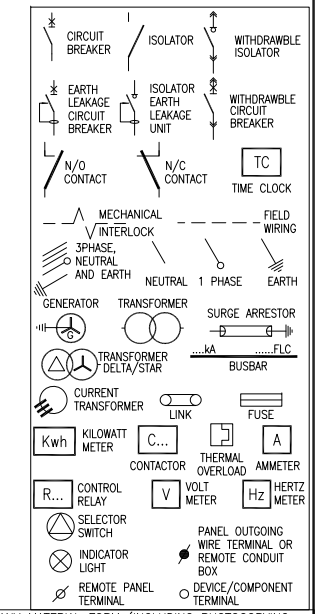

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T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	406	1 of 3	T00

File Name : 19034_406 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-1BE / UPS-1B
Single Line Diagram

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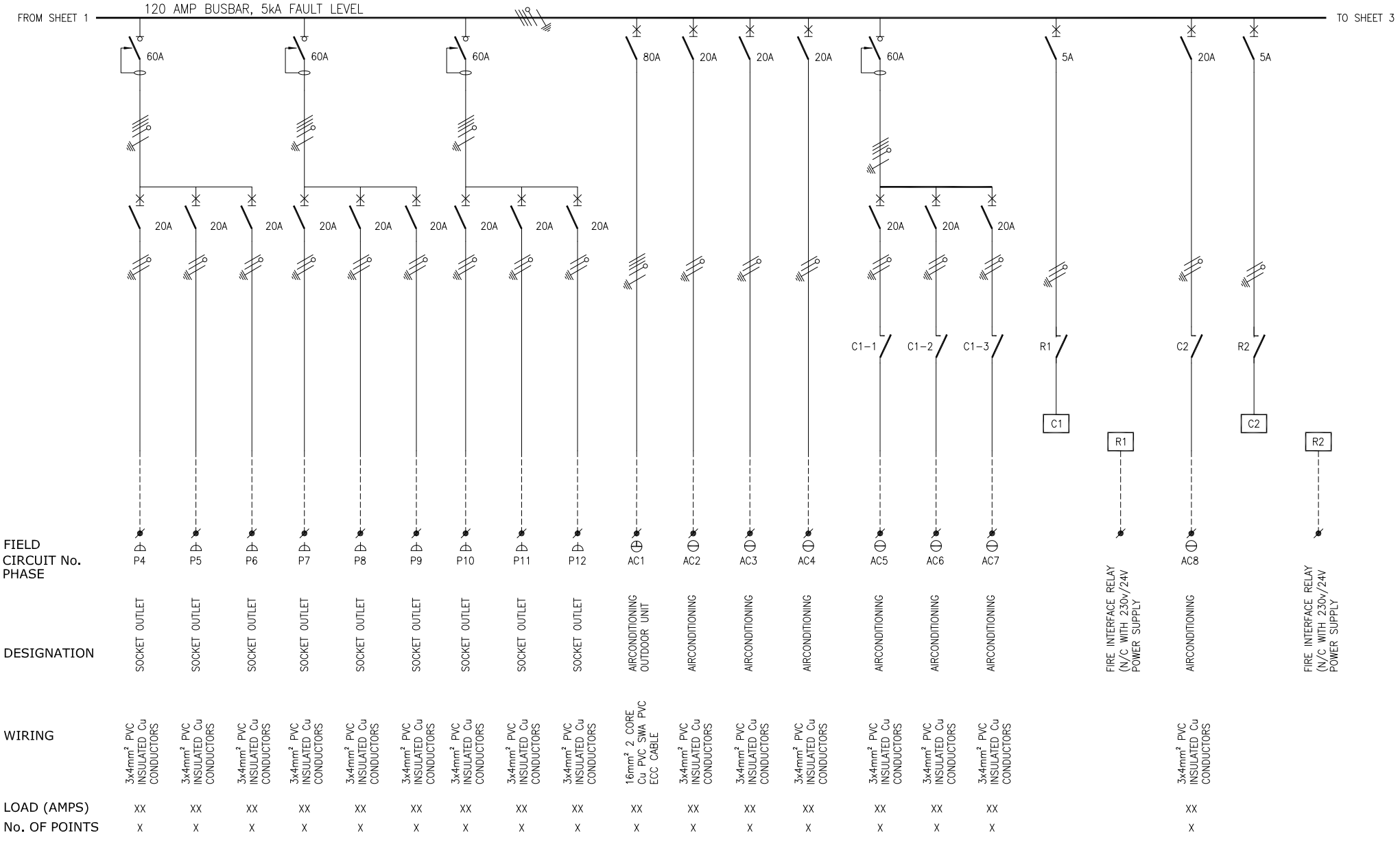

REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	406	2 of 3	T00

File Name : 19034_406 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-1BE / UPS-1B
Single Line Diagram

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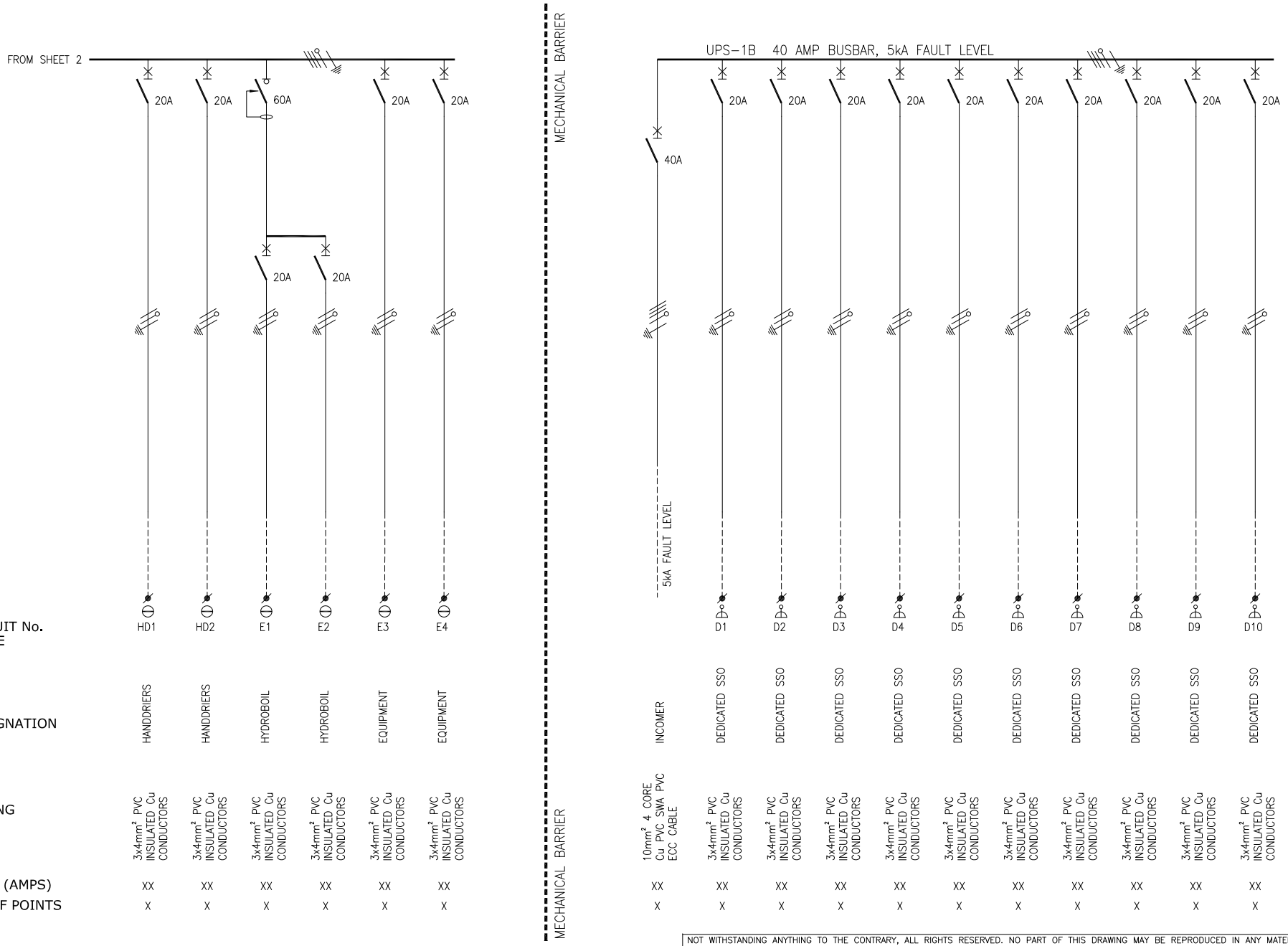

REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: April'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 406 | SHEET: 3 of 3 | REV.: T00

File Name : 19034_406 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-1BE / UPS-1B
Single Line Diagram

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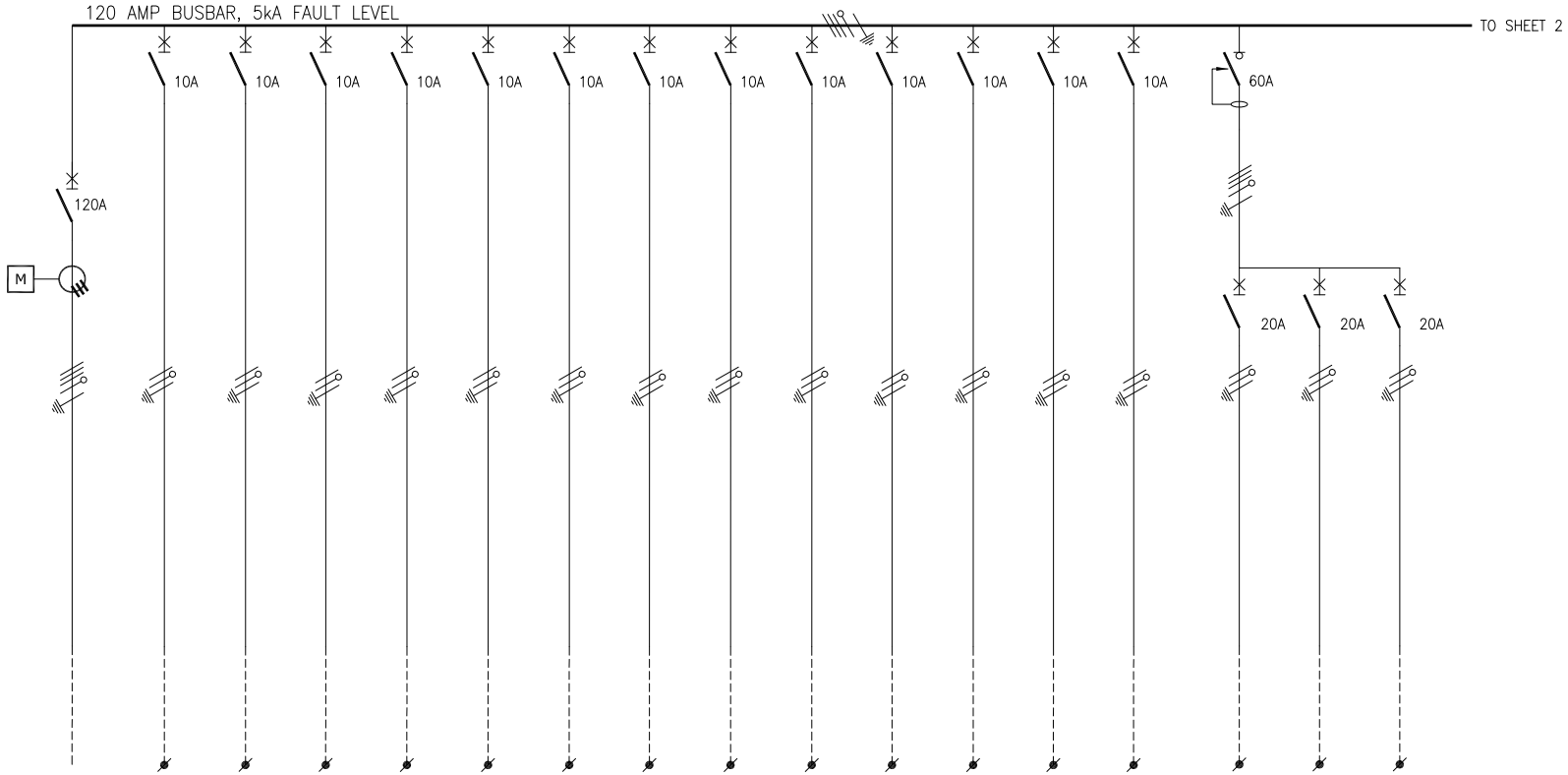
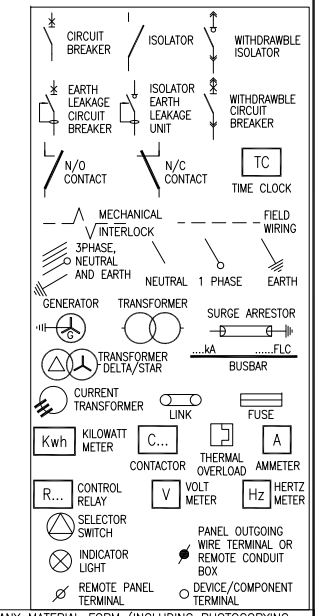


NOTES

1) DROPPERS/TAILS TO BE RATED FOR FULL i^2t LET THROUGH.
2) HARNESSED WIRING TO BE DERATED.
3) TUFFNOL BRACES ARE NOT TO BE USED ABOVE 10kA.
4) COPPER BUSBARS TO BE CONTINUOUS RATED.
5) SUFFICIENT SPACE REQUIRED FOR SAFE ACCESS FOR REWIRING.
6) EARTH AND NEUTRAL BARS TO BE EASILY ACCESIBLE.
7) ALL CIRCUIT BREAKERS TO BE FITTED WITH TERMINAL SHIELD ON LIVE AND LOAD SIDES.
8) ENCLOSURE TO BE IP54.
9) PHASING RWB, TOP TO BOTTOM, LEFT TO RIGHT, BACK TO FRONT.
10) INTERNAL TEMP TO BE LIMITED TO 5° ABOVE AMBIANT, MAX 40°C.
11) ALL CIRCUITS TO BE LABELED.
12) 25% SPARE SPACE. SPARE SPACES ARE TO BE FITTED WITH COPPER BUSBAR TAILS CONNECTED TO DROPPER BUSBARS TO ALLOW INSTALLATIONOF CIRCUIT BREAKERS WITH A MINIMAL SHUTDOWN PERIOD.
13) DB TO BE FITTED WITH A4 LEGEND CARD HOLDER WITH STANDARD IBUYA A4 LEGEND CARD.
14) EACH CIRCUIT TO BE LABELED WITH DETAILED DESCRIPTION OF CONNECTED DEVICE.
15) EXTERNAL EARTH STUD MOUNTED ADJACENT CABLE ENTRY.

INCOMING CABLE	-TOP/BOTTOM
OUTGOING CIRCUITS	-TOP
COLOUR	-RED (ESSENTIAL) -BLUE (UPS)
MOUNTING	-FLOOR STANDING
ACCESS	-FRONT
PROTECTIVE DEVICES	-SCHNEIDER/CBI
MCCB'S	-COMPACT NSX
MCB's (standard loads)	-TYPE C
MCB's (HVAC loads)	-TYPE D



REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	407	1 of 3	T00

File Name : 19034_407 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Distribution Board
DB-1CE / UPS-1C
Single Line Diagram

IBUYA Consulting Engineers
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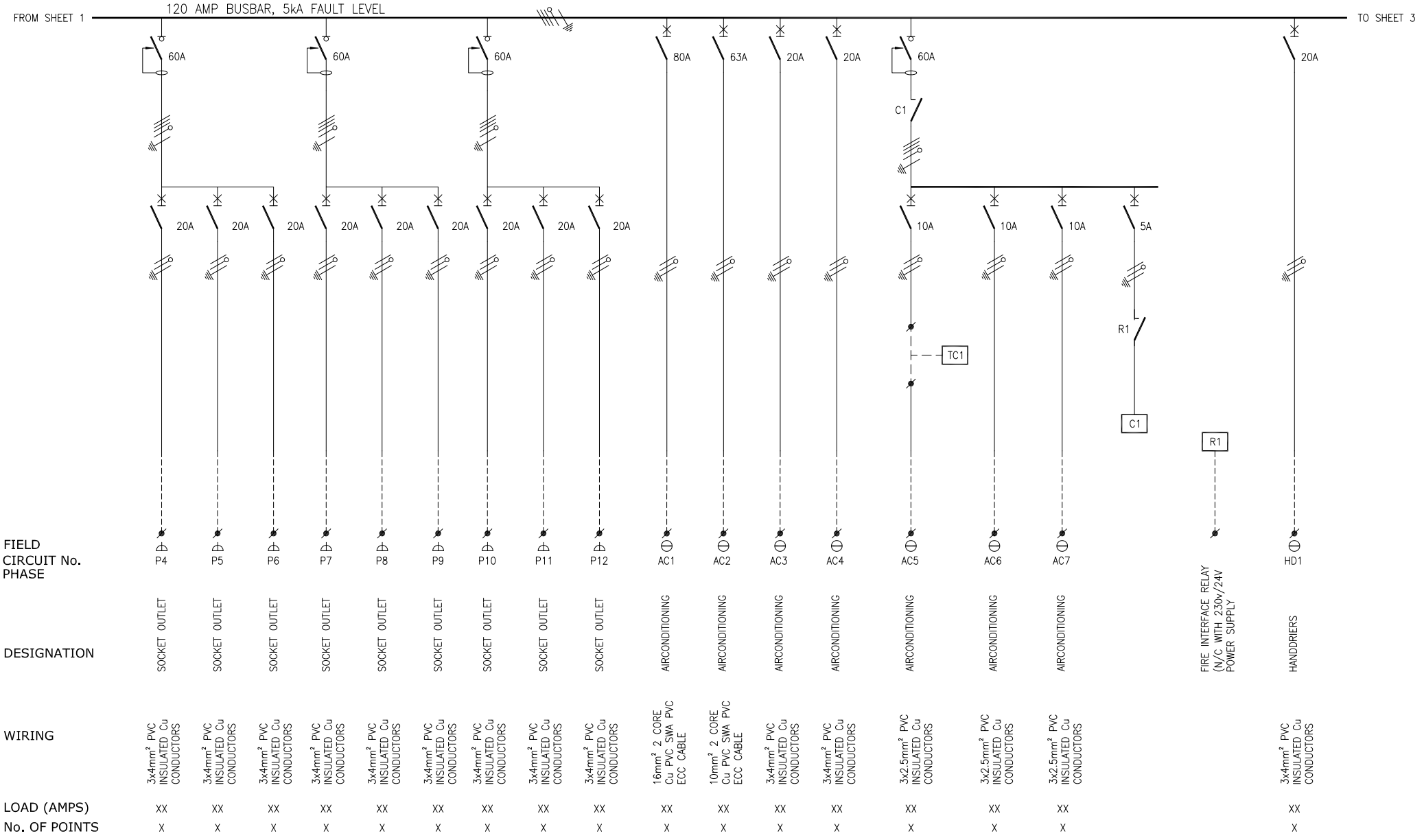

REV	DESCRIPTION	BY	DATE	CHKD.
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: April'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 407 | SHEET: 2 of 3 | REV.: T00

File Name : 19034_407 Lyr:

PROJECT:

Umalusi Existing Offices Additions and Alterations

DRAWING TITLE:

Distribution Board DB-1CE / UPS-1C Single Line Diagram

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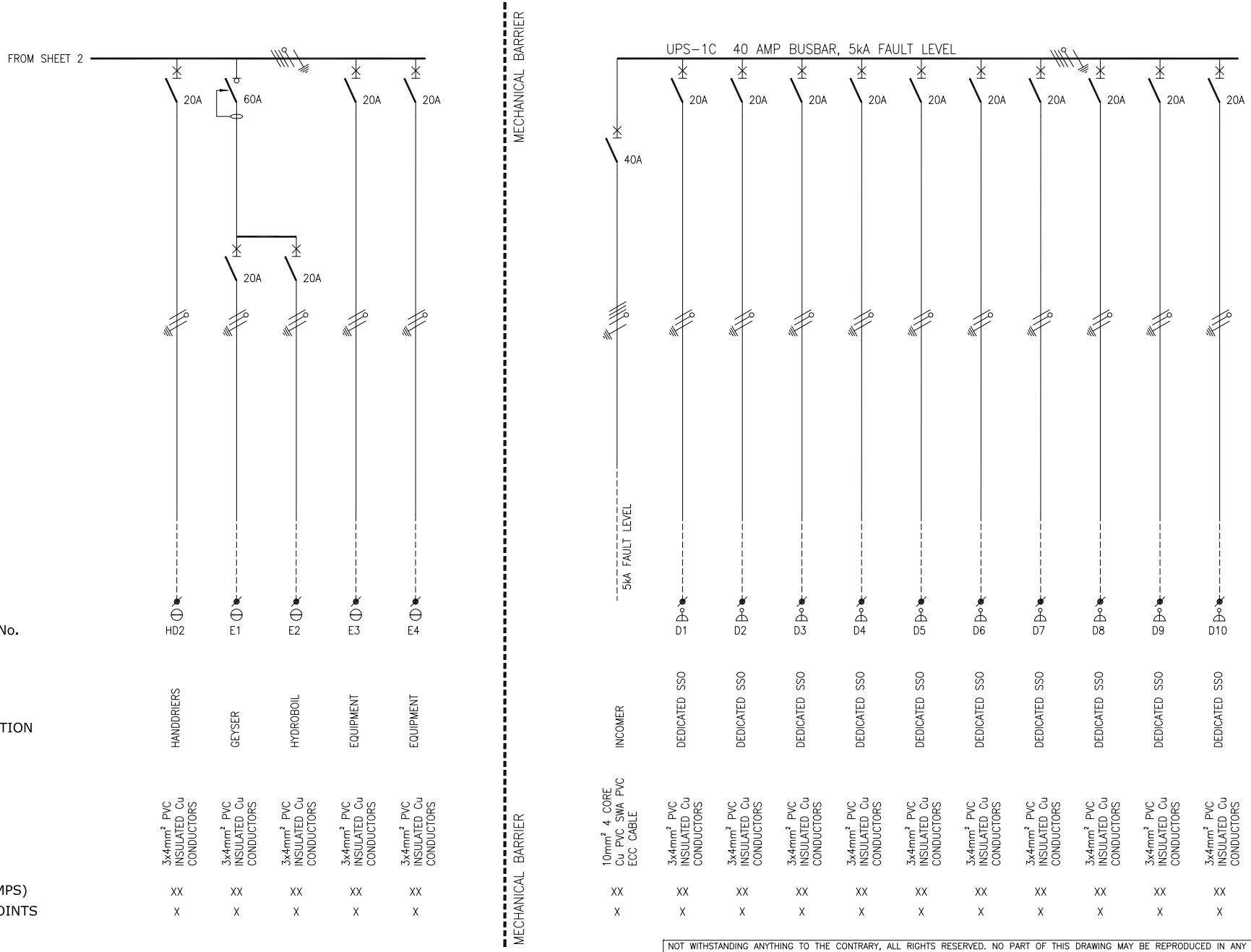

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T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: April'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 407 | SHEET: 3 of 3 | REV.: T00

File Name : 19034_407 Lyr:

PROJECT:

Umalusi Existing Offices Additions and Alterations

DRAWING TITLE:

Distribution Board DB-1CE / UPS-1C Single Line Diagram

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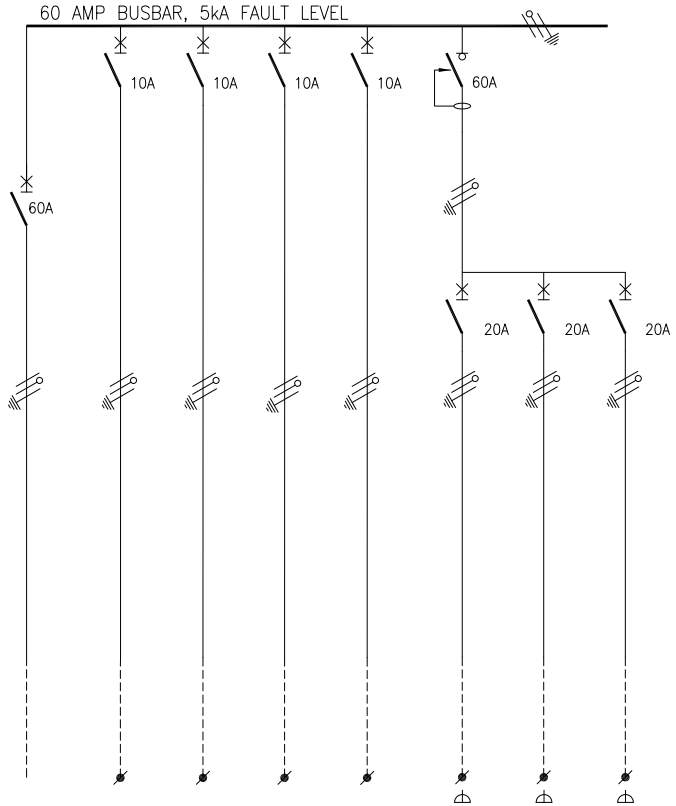

FIELD							
CIRCUIT No.		L1			P1	P2	P3
PHASE							
DESIGNATION	INCOMER	LIGHTING	SPARE	SPARE	SPARE	SOCKET OUTLET	SOCKET OUTLET	SOCKET OUTLET
WIRING	16mm² 2 CORE Cu PVC SWA PVC ECC CABLE	3x2.5mm² PVC INSULATED Cu CONDUCTORS				3x4mm² PVC INSULATED Cu CONDUCTORS	3x4mm² PVC INSULATED Cu CONDUCTORS	3x4mm² PVC INSULATED Cu CONDUCTORS
LOAD (AMPS)	XX	XX				XX	XX	XX
No. OF POINTS	X	X				X	X	X

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9) PHASING RWB, TOP TO BOTTOM, LEFT TO RIGHT, BACK TO FRONT.
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11) ALL CIRCUITS TO BE LABELED.
12) 50% SPARE SPACE. SPARE SPACES ARE TO BE FITTED WITH COPPER BUSBAR TAILS CONNECTED TO DROPPER BUSBARS TO ALLOW INSTALLATIONOF CIRCUIT BREAKERS WITH A MINIMAL SHUTDOWN PERIOD.
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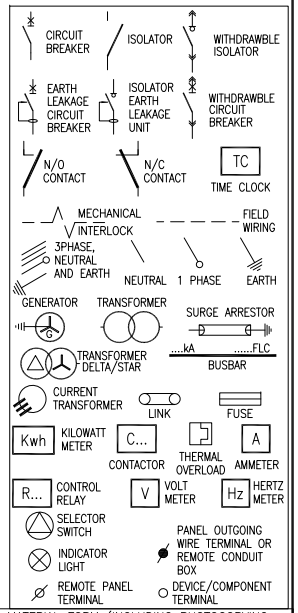
15) EXTERNAL EARTH STUD MOUNTED ADJACENT CABLE ENTRY.

INCOMING CABLE	-TOP/BOTTOM
OUTGOING CIRCUITS	-TOP
COLOUR	-WHITE/ORANGE -RED (ESSENTIAL)
MOUNTING	-SURFACE MOUNTED
ACCESS	-FRONT
PROTECTIVE DEVICES	-SCHNEIDER/CBI
MCCB'S	-COMPACT NSX
MCB's (standard loads)	-TYPE C
MCB's (HVAC loads)	-TYPE D



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T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER	DRAWN	DATE:	SCALE:	CHKD.
MK	VT	April'20	nts	
			PAPER SIZE: A3	

PROJECT No.	DRAWING No.	SHEET:	REV.
19034	408	1 of 1	T00

File Name : 19034_408 Lyr:

PROJECT:
Umalusi Existing Offices
Additions and Alterations

DRAWING TITLE:
Guard House Distribution Board
DB-GH
Single Line Diagram

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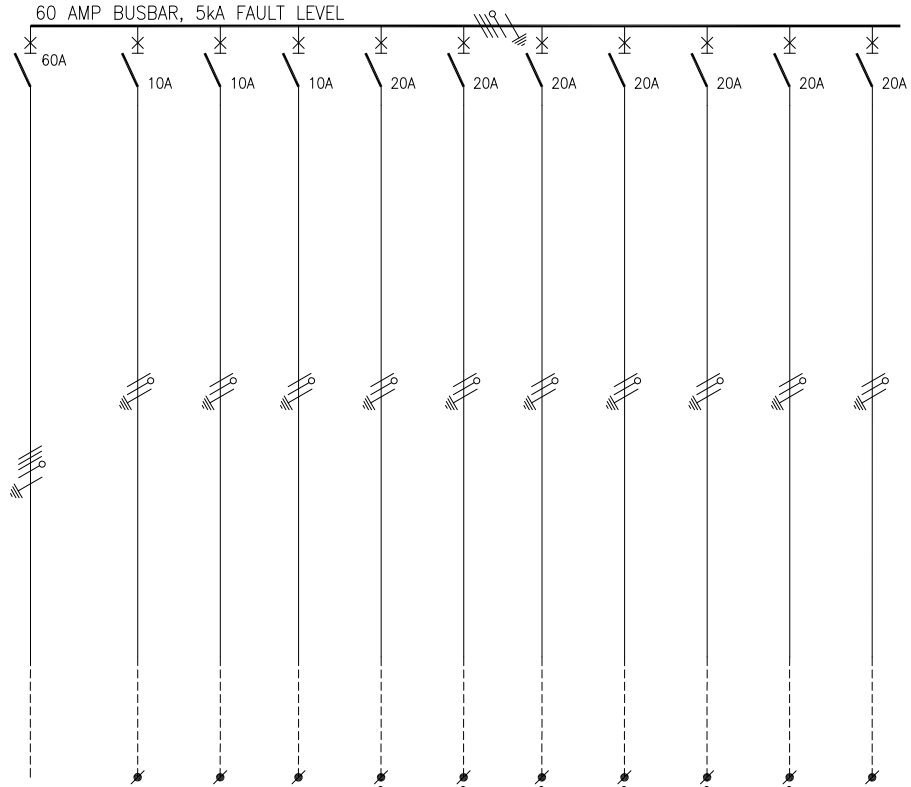

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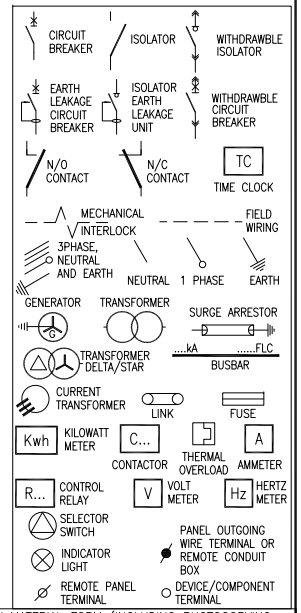
15) EXTERNAL EARTH STUD MOUNTED ADJACENT CABLE ENTRY.

INCOMING CABLE	-TOP
OUTGOING CIRCUITS	-TOP
COLOUR	-BLUE
MOUNTING	-SURFACE MOUNTED
ACCESS	-FRONT
PROTECTIVE DEVICES	-SCHNEIDER/CBI
MCCB'S	-COMPACT NSX
MCB's (standard loads)	-TYPE C
MCB's (HVAC loads)	-TYPE D



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T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	VT	10/06/20	MK

ENGINEER: MK | DRAWN: VT | DATE: June'20 | SCALE: nts | PAPER SIZE: A3 | CHKD.

PROJECT No.: 19034 | DRAWING No.: 409 | SHEET: 1 of 1 | REV.: T00

File Name : 19034_409 Lyr:

PROJECT:

Umalusi Existing Offices Additions and Alterations

DRAWING TITLE:

Distribution Board DB-UPS (Sever Room) Single Line Diagram

IBUYA Consulting Engineers
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Type		Description	Installation	Lamps		Qty	Location	Comments
				Type	Colour			
A1		LED Linear vapour proof fitting (IP65), with poly carbonate UV protected diffuser and stainless clips. (160 - 180 lumens per watt and CRI 80+). Complete with 5 year warantee	Surface Mounted	35-40W LED	4000K		Strong Room / Service Ducts etc	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations / Beka / Regent
A2		LED Linear vapour proof fitting (IP65), with poly carbonate UV protected diffuser and stainless clips. (160 - 180 lumens per watt and CRI 80+). Complete with 5 year warantee	Surface Mounted	30W LED	4000K		Service Ducts etc	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations / Beka / Regent
A3 / A3e		3000mm aluminium linear recessed luminaire complete with 33mm wide frosted diffuser and matte silver ceiling trim. Supplied complete with 3m cordset and 6A plugtop.1 hour self contained emergency version where indicated. Complete with 5 year warantee	Recessed mounted	24W /m LED	4000K		First Floor Lobby Area	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations / Regent
B1 / B1e		600x600 LED panel with white alumimium trim. Back lit with a 4mm honeycomb diffuser and PMMA light guide CRI 80+, UGR =19, 100-120 lumens per watt complete with 6amp plug top and 3m cordset. 1 hour battery back up where indicated with 'e'. Complete with 5 year warantee	Recessed mounted	35-40W LED	4000K		Offices	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations
B2 / B2e		600x600 dimmable LED panel with white alumimium trim. Back lit with a 4mm honeycomb diffuser and PMMA light guide CRI 80+, UGR =19, 100-120 lumens per watt complete with 6amp plug top and 3m cordset. 1 hour battery back up where indicated with 'e'. Complete with 5 year warantee	Recessed mounted	35-40W LED	4000K		Conference Rooms /Board Rooms	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations

Notes

Samples of all luminaires are to be presented for approval before orders are placed.
Quantities are to be confirmed by contractor. All luminaires to have LM79, LM80 & TM21 test reports and IES files.
Lamps to be Osram ,Phillips or equal and approved. Control gear to be Osram, Phillips, Tridonic, V&S or equal and approved . Full details to be submitted with sample.

REV	DESCRIPTION	BY	DATE	CHKD
T00	For Tender Purposes	VT	23/06/20	MK
0	ORIGINAL ISSUE	VT	15/05/20	MK

ENGINEER: MK | DRAWN: VT | DATE: Feb'20 | CHKD | P SIZE: A4

PROJ No.: 19034 | DWG No: 601 | REV: T00 | SCALE: nts

FILE NAME: 19034_601 | SHEET: 1 of 3

TITLE:

Umalusi Existing Offices - Additions and Alterations

Luminaire Schedule

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Type		Description	Installation	Lamps		Qty	Location	Comments
				Type	Colour			
C1 / C1e		Die-cast aluminium LED dimmable downlighter with 120-140 lumens per watt (CRI 80+), complete with 3m cordset and 6amp plug top. 1 hour emergency battery back up where indicated with "e". Complete with 5 year warantee	Recessed mounted	10-12W LED	4000K		Ablutions	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations
C2 / C2e		Die-cast aluminium LED downlighter with 120-140 lumens per watt (CRI 80+), complete with 3m cordset and 6amp plug top. 1 hour emergency battery back up where indicated with "e". Complete with 5 year warantee	Recessed mounted	20-25W LED	4000K		General Areas	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations
C3		Aluminium GU10 LED Downlighter	Recessed mounted	7.5W Dimmable GU10 LED	4000K		General Areas	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations
D		Column mounted IP65 up/downlight. Complete with integral drivers. Colour - Black.	Surface Mounted	2x9W GU10 LED	4000K		External Façade	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations
E		Ceiling mounted emergnecy exit signage. Complete with 2 hour self contained, maintained emergency with separate red/green indicator lights and test button. Complete with 5 year warantee	Surface Mounted	5W LED	4000K		Emergency Escape	Supplied by Province Lighting / ETAP / Performace Lighting / Lighting Innovations

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ENGINEER: MK | DRAWN: VT | DATE: Feb'20 | CHKD | P SIZE: A4
PROJ No.: 19034 | DWG No: 601 | REV: T00 | SCALE: nts
FILE NAME: 19034_601 | SHEET: 2 of 3

TITLE:
Umalusi Existing Offices - Additions and Alterations

Luminaire Schedule

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Type		Description	Installation	Lamps		Qty	Location	Comments
				Type	Colour			
F		Beka Zela post top luminaire, complete with 4,5m fibre glass pole.	Post Top Mounted	55W LED	4000K		External	Beka Zela
G		Surface mounted bulkhead fitting. (1 hour self contained emergency version where indicated. Supplied complete with 3m cordset and 5A plugtop.)	Surface Mounted	17W LED	4000K		Stairways	Beka Series 30
H		Elko bollard fitting	Buried in ground	16W LED	4000K		External Walkways	Regent Elko

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ENGINEER: **MK** | DRAWN: **VT** | DATE: **Feb'20** | CHKD | P SIZE **A4**

PROJ No.: **19034** | DWG No **601** | REV **T00** | SCALE **nts**

FILE NAME: 19034_601 SHEET: **3 of 3**

TITLE:

Umalusi Existing Offices - Additions and Alterations

Luminaire Schedule

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GENERATOR COMPLETE WITH SOUND ATTENUATION - SCHEDULE OF REQUIREMENTS

SYSTEM VOLTAGE AND FREQUENCY		400 Volts, 50 Hz
SITE LOCATION		Umalusi Existing Offices - Pretoria
CLIMATIC CONDITIONS	Altitude	1400m aove sea level
	Ambient Temperature	0°C to 40°C
	Relative Humidity	95%
DESIGNATION	Standby Generator	1

	GENERATOR SET		1	2	3
1	Designation & Labelling		GENERATOR 1		
2	Overview	Diesel Engine	Perkins/Caterpillar/Volvo/Cummins mounted on duplex steel base plate with anti-vibration engine/base and base/floor mounted complete with water jacket heater		
3	Overview	Alternator	Stamford/Caterpillar/Leroy Somer 400/230V, 50Hz @ 1500rpm, directly coupled to diesel engine with insulation level 'H'		
4	Overview	Exhaust System	Dual silencer and extended exhaust required		
5	Overview	Arrangement	Floor mounted on plinth, outdoor unit		
6	Overview	Change-over Panel	Auto change-over panel located in LV Kiosk (Installed by others)		
7	Overview	Ventilation/Acoustic System	Sound attenuated canopy		
8	Performance Characteristics	Power Rating	200KW prime power rating at 0.8 pf (250kVA)		
9	Performance Characteristics	Maximum Single Step load	140 kW (70%) from cold start		
10	Performance Characteristics	Alternator Rating	Power Rating ÷ 0.8 + 10% for harmonics caused by non-linear loads		
11	Performance Characteristics	Nominal Output Voltage	400/230V, 3 phase, 4 wire adjustable from 346V to 415V nominal voltage for all load conditions.		
12	Performance Characteristics	Frequency	50 Hz		
13	Performance Characteristics	Neutral Earthing	Solidly earthed		
14	Performance Characteristics	Voltage Distortion Across Phases	Not to exceed 1% of the open circuit voltage		
15	Performance Characteristics	Steady State Voltage Variation	Not greater than 1.5% (from nominal) between 0 and 100% full load with specified speed variation and through unity to 0.8pf lagging		
16	Performance Characteristics	Transient Voltage Dip And Recovery Time	Not greater than 10% deviation from steady state nominal voltage and will recover to within 1.5% of the nominal voltage within 250 milliseconds for step load as specified		
17	Performance Characteristics	Voltage Modulation Amplitude	2% ie. $(U_{max} - U_{min} \times 100) / (U_{nom})$		
18	Performance Characteristics	Steady State Speed Regulation	Not greater than 4% deviation from nominal under all loading conditions		
19	Performance Characteristics	Transient Speed Regulation And Recovery Time	Not greater than 6.5% deviation from nominal under all loading conditions with recovery within 2 seconds		
20	Overload Characteristics	Set Overload Capacity	110% of continuous prime power full load rating at rated voltage for 1 in 12 hours		
21	Overload Characteristics	Alternator	Minimum 250% ful load at rated voltage for 5 seconds		
22	Fuel System	Bulk Fuel Tank	1000Litre base bulk tank complete with piping and hand pump		
	Fuel System	Day Fuel Tank	Base mounted welded steel tank comprising - fill connection, vent pipe/breather, sludge drain connection, sight glass level indicator, feed connection, strainer, electronic level gauge (5 preset alarms and level monitoring)		
23	Fuel System	Fuel Shutoff	Individual fusible links above set to operate gravity shutoff valve and both valves monitored by generator system.		
24	Fuel System	Fuel Transfer	Duplex pumps and solenoid valves controlled via central controller. Level transducers in all tanks		
25	Fuel System	Fuel Filtering	Duvalco Semi Bulk Fuel Management sytem		
26	Fuel System	Fuel Filling Station	Lockable fill point cabinet located externally with fill alarm, tank contents guage, overflow drain.		
27	Control Panel	Physical dimensions (maximum)	1500(w)x2500(l)x1800(h)		
28	Control Panel	Controller	Deep Sea 7320 Controller		
29	Control Panel	Incoming arrangement	2 x 95mm.² Cu PVC SWA PVC ECC cable		
30	Control Panel	Protection Circuit breaker	Schneider or equivalent		
31	Control Panel	Displays for hours run and electrcial paramters	Digital		
32	Additional Equipment	Rigging Equipment	Welded lifting lugs and jacking pads		
32	Additional Equipment	Base	skid mounted with duplex anti-vibration mounting		
33	Additional Equipment	Batteries	Delco maintenance free on hot dip galvanised stand ith clear perspex cover. Capacity for four consecutive cranking cycles (20s on and 10s off), and full operating supply to control systems		
34	Additional Equipment	O&M Manual	Three complete sets hardcopy. One complete set electronically		
35	Testing	Factory	Control functionality, protection devices and alarms, including verification of sensing devices and transducers as requested by the Engineer		
36	Testing	Factory	Cold start and load acceptance tests		
37	Testing	Factory	Full load and Maximum load tests for sufficient duration to verify set capacity. Suitable load banks to be provided as required		
38	Testing	Factory	Substanttiation of transient voltage dip by test or certified graphical documentation to approval of the Engineer		
39	Testing	Factory	Transient voltage and speed performance verification tests		
40	Testing	Site	Full functional test of generation system as installed in conjunction with associated set loads and systems, inclusive of all fuels , lube oils and consumables.		
	Testing	Site	System synchronisation and load acceptance - Suitable load banks to be provided as required.		
	Testing	Site	On completion of all testing, the fuel system shall be full, and lube oil levels shall be full.		
41	General	Colour	Generator Sets - minimum two coats of two pack epoxy paint - Grey		
42	General	Dimensions	1250(w)x3400(l)x1800(h)		
43	General	Accoustic Control	Acoustic louvres and attenuation to reduce noise levels to within 70 dBA @ 3m from generator		
44	General	Signage	Statutory & rating and diagram plate		
45	General	Emmisions	To comply with the **Tier 4** emissions standards as defined by the United States Environmental Protection Agency (EPA) or the equivalent European Stage IIIA Standards		
46	General	Loads	Typically lighting and star delta starting ventilation motors		

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T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	KS	10/06/2020	MK

ENGINEER: MK | DRAWN: KS | DATE: MAY'20 | CHKD | P.SIZE: A3

PROJ No.: 19034 | DWG No: 602 | REV: T00 | SCALE: nts

FILE NAME: | SHEET: 1 of 2

TITLE: **Umalusi Existing Offices Additons & Alterations - New Building**

Generator 1 Schedule

IBUYA Consulting Engineers
"POWERING DEVELOPMENT"
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ESSEX PARK
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E-mail: ibuya@ibuya.co.za

GENERATOR COMPLETE WITH SOUND ATTENUATION - SCHEDULE OF REQUIREMENTS

SYSTEM VOLTAGE AND FREQUENCY		400 Volts, 50 Hz
SITE LOCATION		Umalusi Existing Offices - Pretoria
CLIMATIC CONDITIONS	Altitude	1400m aove sea level
	Ambient Temperature	0°C to 40°C
	Relative Humidity	95%
DESIGNATION		

		GENERATOR	1	2	3
47	Fault Conditions	High Engine Temperature	shutdown and alarm (audible and output)		
48		Low Oil Pressure	shutdown and alarm (audible and output)		
49		Overspeed	shutdown and alarm (audible and output)		
50		Underspeed	shutdown and alarm (audible and output)		
51		Low Coolant Level	shutdown and alarm (audible and output)		
52		High A/C Volts	shutdown and alarm (audible and output)		
53		Low A/C Volts	shutdown and alarm (audible and output)		
54		Emergency Stop	shutdown and alarm (audible and output)		
55		Failure to Start	shutdown and alarm (audible and output)		
56	Alarm & Insication	Set Not in Automatic Mode	indication (flashing led and output)		
57		Low Fuel Level	indication (flashing led) and alarm (audible and output)		
58		Water Jacket Heater Faulty	indication (flashing led) and alarm (audible and output)		
59		Manual Start	indication (flashing led)		
60		Manual Stop	indication (flashing led)		
61		Mains Available	indication (flashing led) plus output to auto changeover panel		
62		Mains	indication (flashing led) plus output to auto changeover panel		
63		Alternator Available	indication (flashing led) plus output to auto changeover panel		
64		Alternator on Load	indication (flashing led) plus output to auto changeover panel		
65		Alterator run down period complex	indication (flashing led) plus output to auto changeover panel		
66		Low Battery Volts	indication (led) and alarm (audible and output)		
67		Fuel Valves Closed	indication (flashing led) and alarm (audible and output)		
68		Room Temperature	indication (flashing led) and alarm (audible and output)		
69	User Programmable Parameters	Alternator Undervoltage (<V)	0 to >V		
70		Alternator Overvoltage (>V)	<V to 600V		
71		Under / Over Voltage Delay	0 to 60 seconds		
72		Start Delay	0 to 60 seconds		
73		Crank Delay	0 to 60 seconds		
74		Run up Delay	0 to 60 seconds		
75		Run on Timer	0 to 60 seconds		
76		Mains Return Timer	0 to 60 seconds		
77		Load Transfer Delay	0 to 60 seconds		
78		Engine Under Speed	50 to 6000 rpm		
79		Engine Over Speed	50 to 6000 rpm		
80		Number of Start Attempts, Maximum Crank Time	1 to 10, 1 to 60 seconds		
81		Low Battery Voltage	8 to 30V		
82		Overload, Overload Delay	0.5 to 9000kW, 0 to 60 seconds		
83		Alternator Underfrequency (<f)	0 to >f		
84		Alternator Overfrequency (>f)	<f to 130Hz		
85		Under / Over Frequency Delay	0 to 60 seconds		
86		Voltage Window - Difference Between Gen and Bus	0 to 300V		
87		Phase Window -Difference between Gen and Bus	0 to 90°		
88		Dwell Time	0 to 25.0 seconds		
89		Synchronization Timeout	0 to 1800 seconds		

Notes

REV	DESCRIPTION	BY	DATE	CHKD
T00	For Tender Purposes	VT	23/06/20	MK
0	Original Issue	KS	10/06/20	MK

ENGINEER:	DRAWN:	DATE:	CHKD	P.SIZE
MK	**KS**	**MAY'20**		**A3**

PROJ No.:	DWG No	REV	SCALE
19034	**602**	**T00**	**nts**

FILE NAME: **2 of 2**

TITLE:

Umalusi Existing Offices Additons & Alterations - New Building

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GENERATOR COMPLETE WITH SOUND ATTENUATION - SCHEDULE OF REQUIREMENTS

SYSTEM VOLTAGE AND FREQUENCY		400 Volts, 50 Hz
SITE LOCATION		Umalusi Existing Offices - Pretoria
CLIMATIC CONDITIONS	Altitude	1400m aove sea level
	Ambient Temperature	0°C to 40°C
	Relative Humidity	95%
DESIGNATION	Standby Generator	2

			1	2	3
GENERATOR SET					
1	Designation & Labelling		GENERATOR 2		
2	Overview	Diesel Engine	Perkins/Caterpillar/Volvo/Cummins mounted on duplex steel base plate with anti-vibration engine/base and base/floor mounted complete with water jacket heater		
3	Overview	Alternator	Stamford/Caterpillar/Leroy Somer 400/230V, 50Hz @ 1500rpm, directly coupled to diesel engine with insulation level 'H'		
4	Overview	Exhaust System	Dual silencer and extended exhaust required		
5	Overview	Arrangement	Floor mounted on plinth, outdoor unit		
6	Overview	Change-over Panel	Local auto AMF change-over panel (to be allowed for at generator)		
7	Overview	Ventilation/Acoustic System	Sound attenuated canopy		
8	Performance Characteristics	Power Rating	200KW prime power rating at 0.8 pf (250kVA)		
9	Performance Characteristics	Maximum Single Step load	140 kW (70%) from cold start		
10	Performance Characteristics	Alternator Rating	Power Rating ÷ 0.8 + 10% for harmonics caused by non-linear loads		
11	Performance Characteristics	Nominal Output Voltage	400/230V, 3 phase, 4 wire adjustable from 346V to 415V nominal voltage for all load conditions.		
12	Performance Characteristics	Frequency	50 Hz		
13	Performance Characteristics	Neutral Earthing	Solidly earthed		
14	Performance Characteristics	Voltage Distortion Across Phases	Not to exceed 1% of the open circuit voltage		
15	Performance Characteristics	Steady State Voltage Variation	Not greater than 1.5% (from nominal) between 0 and 100% full load with specified speed variation and through unity to 0.8pf lagging		
16	Performance Characteristics	Transient Voltage Dip And Recovery Time	Not greater than 10% deviation from steady state nominal voltage and will recover to within 1.5% of the nominal voltage within 250 milliseconds for step load as specified		
17	Performance Characteristics	Voltage Modulation Amplitude	2% ie. $(U_{max} - U_{min} \times 100) / (U_{nom})$		
18	Performance Characteristics	Steady State Speed Regulation	Not greater than 4% deviation from nominal under all loading conditions		
19	Performance Characteristics	Transient Speed Regulation And Recovery Time	Not greater than 6.5% deviation from nominal under all loading conditions with recovery within 2 seconds		
20	Overload Characteristics	Set Overload Capacity	110% of continuous prime power full load rating at rated voltage for 1 in 12 hours		
21	Overload Characteristics	Alternator	Minimum 250% ful load at rated voltage for 5 seconds		
22	Fuel System	Bulk Fuel Tank	1000Litre base bulk tank complete with piping and hand pump		
	Fuel System	Day Fuel Tank	Base mounted welded steel tank comprising - fill connection, vent pipe/breather, sludge drain connection, sight glass level indicator, feed connection, strainer, electronic level gauge (5 preset alarms and level monitoring)		
23	Fuel System	Fuel Shutoff	Individual fusible links above set to operate gravity shutoff valve and both valves monitored by generator system.		
24	Fuel System	Fuel Transfer	Duplex pumps and solenoid valves controlled via central controller. Level transducers in all tanks		
25	Fuel System	Fuel Filtering	Duvalco Semi Bulk Fuel Management sytem		
26	Fuel System	Fuel Filling Station	Lockable fill point cabinet located externally with fill alarm, tank contents guage, overflow drain.		
27	Control Panel	Physical dimensions (maximum)	1500(w)x2500(l)x1800(h)		
28	Control Panel	Controller	Deep Sea 7320 Controller		
29	Control Panel	Incoming arrangement	2 x 95mm.² Cu PVC SWA PVC ECC cable		
30	Control Panel	Protection Circuit breaker	Schneider or equivalent		
31	Control Panel	Displays for hours run and electrcial paramters	Digital		
32	Additional Equipment	Rigging Equipment	Welded lifting lugs and jacking pads		
32	Additional Equipment	Base	skid mounted with duplex anti-vibration mounting		
33	Additional Equipment	Batteries	Delco maintenance free on hot dip galvanised stand ith clear perspex cover. Capacity for four consecutive cranking cycles (20s on and 10s off), and full operating supply to control systems		
34	Additional Equipment	O&M Manual	Three complete sets hardcopy. One complete set electronically		
35	Testing	Factory	Control functionality, protection devices and alarms, including verification of sensing devices and transducers as requested by the Engineer		
36	Testing	Factory	Cold start and load acceptance tests		
37	Testing	Factory	Full load and Maximum load tests for sufficient duration to verify set capacity. Suitable load banks to be provided as required		
38	Testing	Factory	Substanttiation of transient voltage dip by test or certified graphical documentation to approval of the Engineer		
39	Testing	Factory	Transient voltage and speed performance verification tests		
40	Testing	Site	Full functional test of generation system as installed in conjunction with associated set loads and systems, inclusive of all fuels , lube oils and consumables.		
	Testing	Site	System synchronisation and load acceptance - Suitable load banks to be provided as required.		
	Testing	Site	On completion of all testing, the fuel system shall be full, and lube oil levels shall be full.		
41	General	Colour	Generator Sets - minimum two coats of two pack epoxy paint - Grey		
42	General	Dimensions	1250(w)x3400(l)x1800(h)		
43	General	Accoustic Control	Acoustic louvres and attenuation to reduce noise levels to within 70 dBA @ 3m from generator		
44	General	Signage	Statutory & rating and diagram plate		
45	General	Emmisions	To comply with the **Tier 4** emissions standards as defined by the United States Environmental Protection Agency (EPA) or the equivalent European Stage IIIA Standards		
46	General	Loads	Typically lighting and star delta starting ventilation motors		

REV	DESCRIPTION	BY	DATE	CHKD
T00	For Tender Purposes	KS	23/06/20	MK

ENGINEER: MK	DRAWN: KS	DATE: MAY'20	CHKD	P.SIZE A3
PROJ No.: 19034		DWG No 603	REV T00	SCALE nts
FILE NAME:		SHEET: 1 of 2		

TITLE:
Umalusi Existing Offices Additons & Alterations - Existing Building

Generator 2 Schedule

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GENERATOR COMPLETE WITH SOUND ATTENUATION - SCHEDULE OF REQUIREMENTS

SYSTEM VOLTAGE AND FREQUENCY		400 Volts, 50 Hz
SITE LOCATION		Umalusi Existing Offices - Pretoria
CLIMATIC CONDITIONS	Altitude	1400m aove sea level
	Ambient Temperature	0°C to 40°C
	Relative Humidity	95%
DESIGNATION		

		GENERATOR	1	2	3
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53		Low A/C Volts	shutdown and alarm (audible and output)		
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73		Crank Delay	0 to 60 seconds		
74		Run up Delay	0 to 60 seconds		
75		Run on Timer	0 to 60 seconds		
76		Mains Return Timer	0 to 60 seconds		
77		Load Transfer Delay	0 to 60 seconds		
78		Engine Under Speed	50 to 6000 rpm		
79		Engine Over Speed	50 to 6000 rpm		
80		Number of Start Attempts, Maximum Crank Time	1 to 10, 1 to 60 seconds		
81		Low Battery Voltage	8 to 30V		
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85		Under / Over Frequency Delay	0 to 60 seconds		
86		Voltage Window - Difference Between Gen and Bus	0 to 300V		
87		Phase Window -Difference between Gen and Bus	0 to 90°		
88		Dwell Time	0 to 25.0 seconds		
89		Synchronization Timeout	0 to 1800 seconds		

Notes

REV	DESCRIPTION	BY	DATE	CHKD
T00	For Tender Purposes	KS	23/06/20	MK

ENGINEER: **MK** | DRAWN: **KS** | DATE: **MAY'20** | CHKD | P.SIZE **A3**

PROJ No.: **19034** | DWG No **603** | REV **0** | SCALE **nts**

FILE NAME: **2 of 2**

TITLE: **Umalusi Existing Offices Additons & Alterations - Existing Building**

Generator 2 Schedule

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UPS - SCHEDULE OF REQUIREMENTS

SYSTEM VOLTAGE AND FREQUENCY		400 Volts, 50 Hz
SITE LOCATION		Umalusi Existing Offices - Pretoria
CLIMATIC CONDITIONS	Altitude	1400m above Sea Level
	Ambient Temperature	0°C to 40°C
	Relative Humidity	40% - 96%
DESIGNATION		Server room

	UPS		1	2
1	Designation & Labelling		UPS 1	
2	Overview	GENERAL	Eaton/Schneider(APC)/Delta or equal and approved	
		Application	No break in power to IT Equipment backup	
		Rated Voltage (Input)	400	
		Input Wiring	3P + N + E	
		Output Wiring	3P + N + E	
		Arrangement	In Line	
3	Performance Characteristics	Output Power Rating KVA	60KVA	
		Output Power Rating KW @ 0.8 PF	48kW	
		Efficiency	91% typically	
		Nominal Output Voltage	400V, 3 phase, 4 wire adjustable from 380V to 415V nominal voltage for all load conditions.	
		Nominal Input Voltage	400V, 3 phase, 4 wire adjustable from 380V to 415V nominal voltage for all load conditions.	
		Frequency	50 Hz	
		Overload conditions	125 % of full load for 5 min	
		Protection	Internal electronic overload	
4	Enviromental conditions	Application	Indoor	
		Temperature Range	10-40 deg C operating	
		Conditioned room	Airconditioned Room - typically 20 deg c	
		Heat Dissipation @ full load	Manner of 4000 BTU/ Hour	
5	Battery	Type	Sealed, Maintenance Free	
		Charging Method	Float / Trickle	
		Backup (Time) at full laod	10 minutes	
		Life expectancy	10 years or 250 complete discharge cycles	
		Protection	Circuit Breaker	
6	Alarms	LCD Display For Alarms	Unit on Battery, Low Battery, Summary Alarm, UPS On , Input Fail, maintenance	
		Audible Alarm conditions	Unit on Battery, Low Battery, Input Fail, Maintenance	
		Event Log	Event log for 20+ conditions	
7	Communication	Coms Ports	RS 232 Interface Port, RS 485 Interface Port and ethernet Port	
		Software	Windows supported to be cabable of retrieving all info on unit display	
		Remote Monitoring allowances	Event Log, alarm conditions, (Remote Dial up Provision)	
		Remote Monitoring Panel	To be provided.	
8	Bypass	Auto	Transfer of load to bypass source when overload, Over temperature or malfunction within the unit occurs	
		Manual	External Manual Bypass to enable full maintenace without interuption to supply	
9	Cabinet	Material	Freestanding anodised aluminium or 20mm thick epoxy coated mild steel	
		Physical dimensions (maximum)	To be determined by supplier	
		Cooling	Forced air by internal Mounted fans	
10	Testing	Factory	Operational Discharge, recharge and internal Battery Tests	
			Full Funtionality test and sign off.	
		Site	As per Ibuya Test Schedule	
			Suppliers commissioning sheet	
11	General	Internal Protection	AC Input Over current and Under Voltage.	
		Automatic Battery Test	Programmable for daily operation	
		Parellel Functionality	Unit to be compliant for parallel operation with like unit	
		Loads	Typically IT and electronic equipment	

REV	DESCRIPTION	BY	DATE	CHKD
T00	For Tender Purposes	KS	23/06/20	MK

ENGINEER: **MK**	DRAWN: **KS**	DATE: **MAY'20**	CHKD	P.SIZE **A3**
PROJ No.: **19034**		DWG No **604**	REV **T00**	SCALE **nts**
FILE NAME: 19034_604			SHEET: **1 of 1**	

TITLE: **Umalusi Existing Offices - New Building**

UPS - 1 Schedule

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UPS - SCHEDULE OF REQUIREMENTS

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	Ambient Temperature	0°C to 40°C
	Relative Humidity	40% - 96%
DESIGNATION		Server room

	UPS		1	2
1	Designation & Labelling		UPS 2	
2	Overview	GENERAL	Eaton/Schneider(APC)/Delta or equal and approved	
		Application	No break in power to IT Equipment backup	
		Rated Voltage (Input)	400	
		Input Wiring	3P + N + E	
		Output Wiring	3P + N + E	
		Arrangement	In Line	
3	Performance Characteristics	Output Power Rating KVA	100KVA	
		Output Power Rating KW @ 0.8 PF	80kW	
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		Frequency	50 Hz	
		Overload conditions	125 % of full load for 5 min	
		Protection	Internal electronic overload	
4	Enviromental conditions	Application	Indoor	
		Temperature Range	10-40 deg C operating	
		Conditioned room	Airconditioned Room - typically 20 deg c	
		Heat Dissipation @ full load	Manner of 4000 BTU/ Hour	
5	Battery	Type	Sealed, Maintenance Free	
		Charging Method	Float / Trickle	
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T00	For Tender Purposes	KS	23/06/20	MK

ENGINEER: **MK**	DRAWN: **KS**	DATE: **MAY'20**	CHKD	P.SIZE **A3**
PROJ No.: **19034**		DWG No **605**	REV **T00**	SCALE **nts**
FILE NAME: 19034_605			SHEET: **1 of 1**	

TITLE: **Umalusi Existing Offices - Existing Building**

UPS - 2 Schedule

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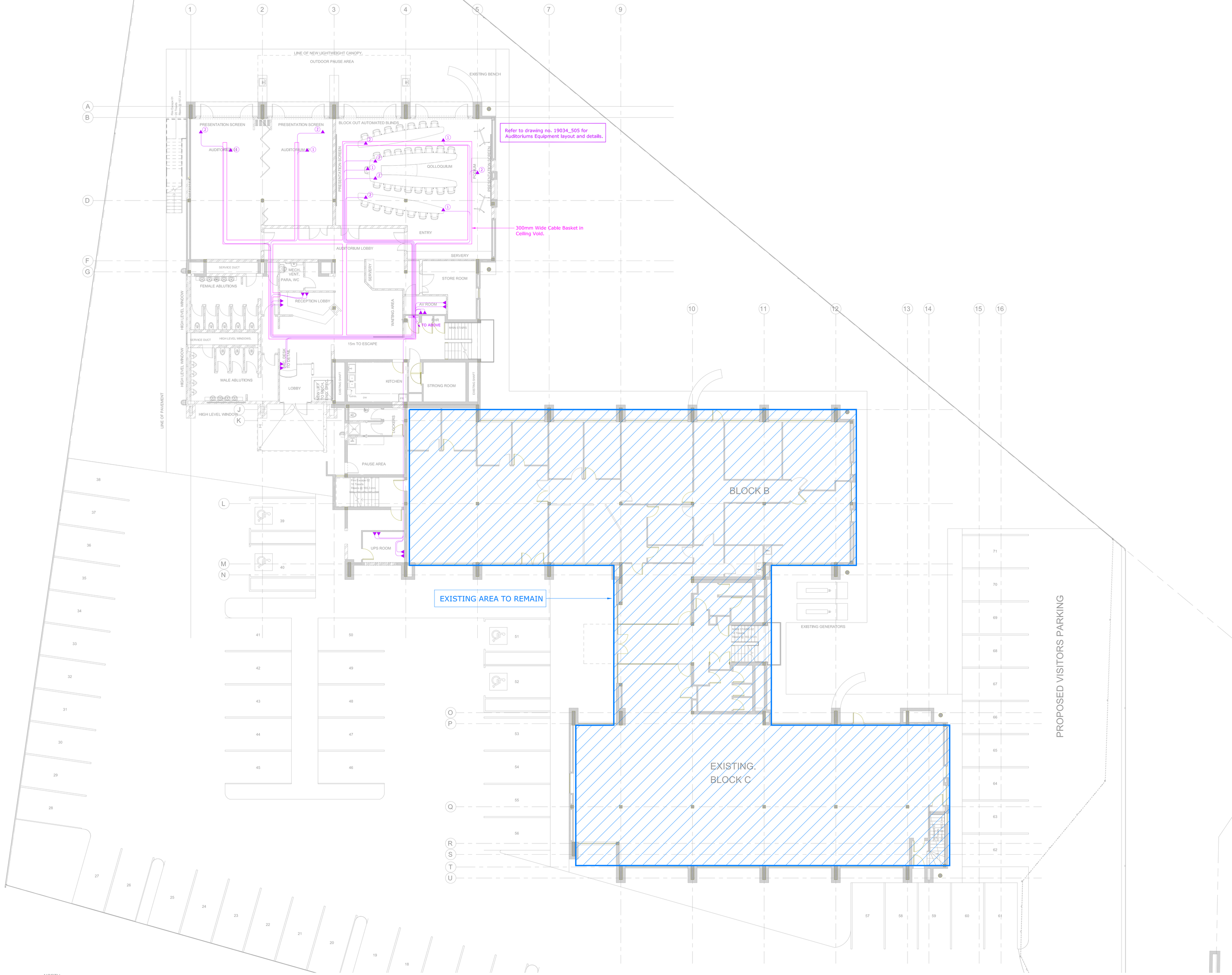

GENERAL NOTES

This drawing is issued for Electrical purposes only, and should be read in conjunction with the Electrical Specification. Setting out of Electrical and Electronic accessories are to be as indicated on Architects details.

Refer to Architects and Structural Drawings for all building dimensions, latest building revisions and services.

Do not scale this drawing.

All work to comply with relevant Standards, Codes of Practice, Specification and Regulations.

DEVICE NOTES:

1. Data point in ceiling void to be linked to floor boxes.
2. Data point and HDMI outlet in recessed floor box, linked to ceiling void via conduits. (Refer to detail drawing no. 19034_505 for floor boxes layout.)

- S 100x100 CONDUIT BOX.
- 8 100x100 CONDUIT BOX AT 500AFFL.
- 6 100x100 CONDUIT BOX AT 1400AFFL.
- L 100x50 CONDUIT BOX
- L 100x50 CONDUIT BOX AT 500AFFL.
- L 100x50 CONDUIT BOX AT 1100AFFL.
- ROUND CONDUIT BOX.
- ROUND DRAW BOX
- S 100x100 DRAW BOX
- S 100x50 BOX BEHIND POWER SKIRTING

- CONDUIT TURNED UP ("D" FOR DOWN)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.
- 150 SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- SECTION OF CONDUIT OMMITED FOR CLARITY. 20mm. DIA. CONDUIT. 25mm. DIA. CONDUIT. 32mm. DIA. CONDUIT. 50mm. DIA. CONDUIT.

- CABLE ROUTE
- CABLE SLEEVE.
- OC - OVERHEAD CAST-IN
- OS - OVERHEAD ON SURFACE OR LAID ON CEILING.
- FC - FLOOR SLAB CAST-IN.
- E - EXPOSED ON SURFACE
- POWER SKIRTING TRUNKING
- CABLE TRAY/LADDER

- 1 REFERENCE TO QUANTITY i.e. 3No.
- 2 REFERENCE TO A DETAIL i.e. DETAIL 2.
- 4 REFERENCE TO AN ELECTRICAL NOTE i.e. NOTE 4.
- #34 REFERENCE TO A STANDARD DRAWING i.e. STANDARD DRAWING No.34
- 6 CABLE NUMBER - REFER TO SCHEDULE FOR DETAILS

- T TELEPHONE JUNCTION BOX.
- D DATA JUNCTION BOX.
- DISTRIBUTION BOARD POSITION.
- TELEPHONE POINT.
- DATA/COMMS OUTLET.

- CCTV CAMERA
- CCTV CAMERA ON AUTO PANNING MOUNT
- CCTV CAMERA ON PAN & TILT MOUNT
- CCTV CAMERA ON AUTO PANNING IN DISCRETE OPAQUE DOME COVER
- CCTV CAMERA FIELD OF VIEW
- PASSIVE INFRARED CURTAIN DETECTOR

- INFRARED BEAM TRANSMITTER AND RECEIVER
- INFRARED OR ULTRASONIC MOTION DETECTOR
- X-RAY INSPECTION MACHINE OR LETTER/ PARCEL BOMB /EXPLOSIVE DETECTOR
- WALK THROUGH METAL DETECTOR

- P 220 VOLT POWER OUTLET FACILITY
- S SIGNAL OUTLET 2x4/4x4 FLUSH CONDUIT BOX.
- S SECURITY CONTROL PANEL/JUNCTION BOX
- ELECTRIC LOCK/STRIKE
- KEY SWITCH
- P FLOOR PEDAL SWITCH
- SPRING RETURN PUSH BUTTON/LEVER RELEASE

DM - DOOR MONITOR
CAM - CAMERA
ER - ELECTRIC RELEASE
EL - ELECTRIC LOCK/STRIKE
MA - MOTION ALARM

- CR ACCESS CONTROL CARD READER
- CR POLE MOUNTED ACCESS CONTROL CARD READER
- VEHICLE BARRIER BOOM CONTROLLER

AA - ACCESS ALARM
AC - ACCESS CONTROL
CR - CARD READER
EO - EXIT OVERRIDE
AO - ALARM OVERRIDE

- C COMMUNICATION PANEL/JUNCTION BOX
- INTERCOM MASTER STATION
- INTERCOM SLAVE/SUBSTATION
- INTERCOM CALL PUSH BUTTON UNIT
- HORN/TRUMPET LOUDSPEAKER
- CEILING FLUSH MOUNTED LOUDSPEAKER
- WALL MOUNTED LOUDSPEAKER
- TALK-BACK WALL MOUNTED LOUDSPEAKER
- COLUMN SPEAKER

- AT ATTENUATOR
- MJ MICROPHONE INPUT JACK IN 100x100 CONDUIT BOX
- SJ SPEAKER OUTPUT JACK IN 100x100 CONDUIT BOX
- FM FM OR AM ANTENNA AS SPECIFIED
- SOUND EQUIPMENT - CABINET RACK

COM - COMMUNICATION/INTERCOM
BGM - BACK GROUND MUSIC SYSTEM WITH OR WITHOUT AUDIBLE VOICE REINFORCEMENT (P.A.)

- STROKE SOUNDER
- CEILING MOUNTED MICROPHONE
- MICROPHONE
- RADIO MICROPHONE
- FIRE ALARM PANEL/JUNCTION BOX
- ALARM BELL
- SMOKE IONISATION DETECTOR
- HEAT DETECTOR
- B BREAK GLASS UNIT

REV	DATE	BY	DESCRIPTION	CHK
T00	30/06/20	VT	For Tender Purposes	MK
0	15/05/20	VT	Original Issue	MK

REVISIONS

IBUA Consulting Engineers
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PROJECT/SERVICES
Umalusi Existing Offices
Additions and Alterations

Electronic Services

TITLE
Ground Floor
Data and Audio Visual Devices
and Wiring Layout

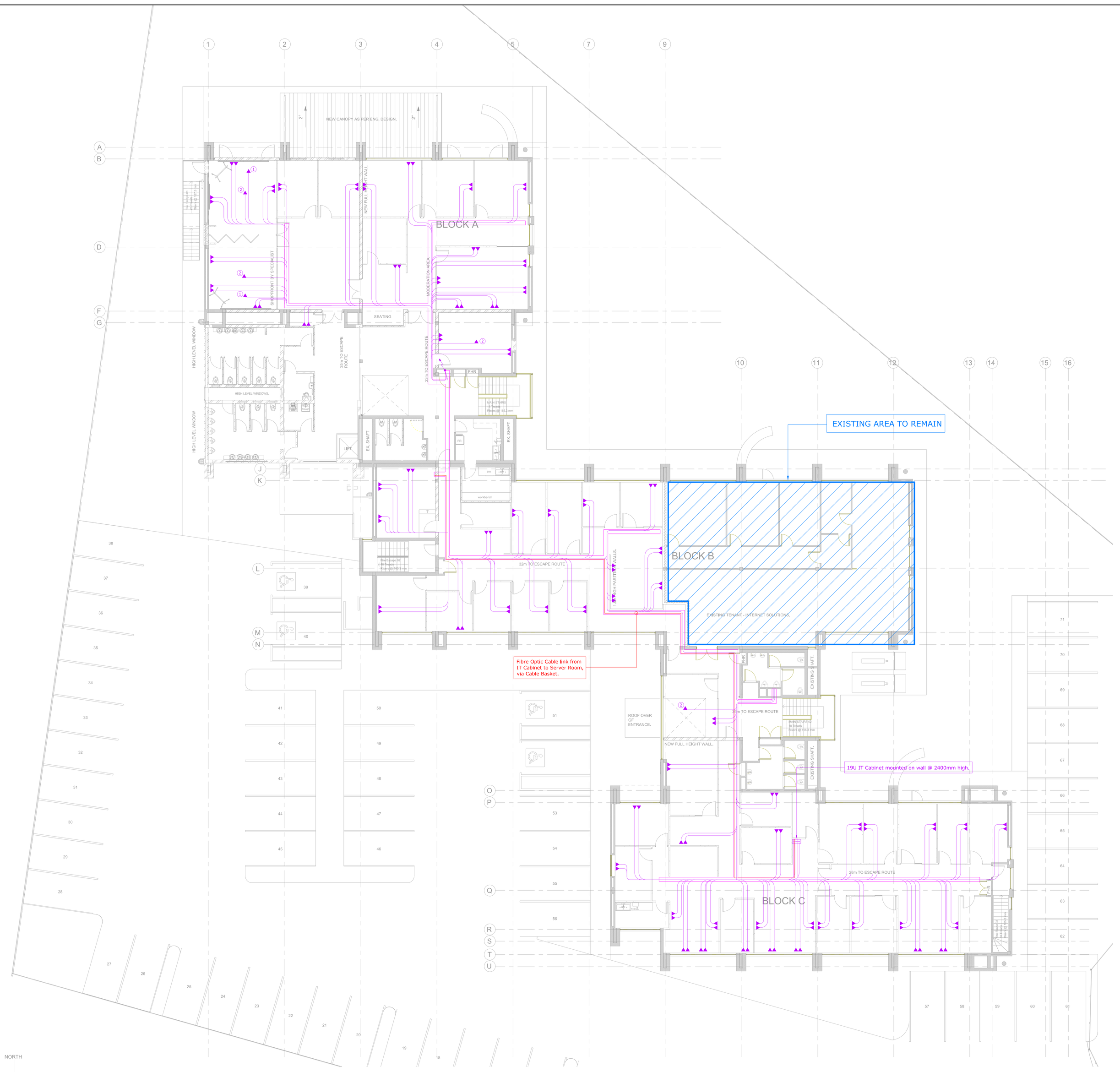
ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	02/20	MK	1:100

PAPER SIZE: A0

PROJECT No.	DRAWING No.	SHEET:	REV:
19034	700		T00

FILE:19034_300 LAYERS:

A0_MST_1



GENERAL NOTES

This drawing is issued for Electrical purposes only, and should be read in conjunction with the Electrical Specification. Setting out of Electrical and Electronic accessories are to be as indicated on Architects details.

Refer to Architects and Structural Drawings for all building dimensions, latest building revisions and services.

Do not scale this drawing.

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DEVICE NOTES:

1. Data point in ceiling void to be linked to floor boxes.
2. Data point and HDMI outlet in recessed floor box, linked to ceiling void via conduits. (Refer to detail drawing no. 19034_505 for floor boxes layout.)

REV	DATE	BY	DESCRIPTION	CHK
T00	30/06/20	VT	For Tender Purposes	MK
0	15/05/20	VT	Original Issue	MK

REVISIONS

IBUA Consulting Engineers
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PROJECT/SERVICES
T00
Additions and Alterations

Electronic Services

TITLE
First Floor
Data and Audio Visual Devices and Wiring Layout

ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	02/20	MK	1:100

PAPER SIZE: A0

PROJECT No.	DRAWING No.	SHEET:	REV:
19034	701		0

FILE: 19034_301 LAYERS:

- 100x100 CONDUIT BOX.
- 100x100 CONDUIT BOX AT 500AFFL.
- 100x100 CONDUIT BOX AT 1400AFFL
- 100x50 CONDUIT BOX
- 100x50 CONDUIT BOX AT 500AFFL.
- 100x50 CONDUIT BOX AT 1100AFFL.
- ROUND CONDUIT BOX.
- ROUND DRAW BOX
- 100x100 DRAW BOX
- 100x50 BOX BEHIND POWER SKIRTING

- CONDUIT TURNED UP ("D" FOR DOWN)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.
- SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- SECTION OF CONDUIT OMMITED FOR CLARITY.
- 20mm. DIA. CONDUIT.
- 25mm. DIA. CONDUIT.
- 32mm. DIA. CONDUIT.
- 50mm. DIA. CONDUIT.

- CABLE ROUTE
- CABLE SLEEVE.
- OC - OVERHEAD CAST-IN
- OS - OVERHEAD ON SURFACE OR LAID ON CEILING.
- FC - FLOOR SLAB CAST-IN.
- E - EXPOSED ON SURFACE
- POWER SKIRTING TRUNKING
- CABLE TRAY/LADDER

- REFERENCE TO QUANTITY i.e. 3No.
- REFERENCE TO A DETAIL i.e. DETAIL 2.
- REFERENCE TO AN ELECTRICAL NOTE i.e. NOTE 4.
- REFERENCE TO A STANDARD DRAWING i.e. STANDARD DRAWING No.34
- CABLE NUMBER - REFER TO SCHEDULE FOR DETAILS

- TELEPHONE JUNCTION BOX.
- DATA JUNCTION BOX.
- DISTRIBUTION BOARD POSITION.
- TELEPHONE POINT.
- DATA/COMMS OUTLET.

- CCTV CAMERA
- CCTV CAMERA ON AUTO PANNING MOUNT
- CCTV CAMERA ON PAN & TILT MOUNT
- CCTV CAMERA ON AUTO PANNING IN DISCRETE OPAQUE DOME COVER
- CCTV CAMERA FIELD OF VIEW
- PASSIVE INFRARED CURTAIN DETECTOR

- INFRARED BEAM TRANSMITTER AND RECEIVER
- INFRARED OR ULTRASONIC MOTION DETECTOR
- DOOR MONITOR - FLATLINE OF SYMBOL FACES ATTACK SIDE
- X-RAY INSPECTION MACHINE OR LETTER/ PARCEL BOMB /EXPLOSIVE DETECTOR
- WALK THROUGH METAL DETECTOR

- P - 220 VOLT POWER OUTLET FACILITY
- S - SIGNAL OUTLET 2x4/4x4 FLUSH CONDUIT BOX.
- S - SECURITY CONTROL PANEL/JUNCTION BOX
- E - ELECTRIC LOCK/STRIKE
- K - KEY SWITCH
- FP - FLOOR PEDAL SWITCH
- • - SPRING RETURN PUSH BUTTON/LEVER RELEASE

DM - DOOR MONITOR
CAM - CAMERA
ER - ELECTRIC RELEASE
EL - ELECTRIC LOCK/STRIKE
MA - MOTION ALARM

- CR - ACCESS CONTROL CARD READER
- CR - POLE MOUNTED ACCESS CONTROL CARD READER
- VEHICLE BARRIER BOOM CONTROLLER

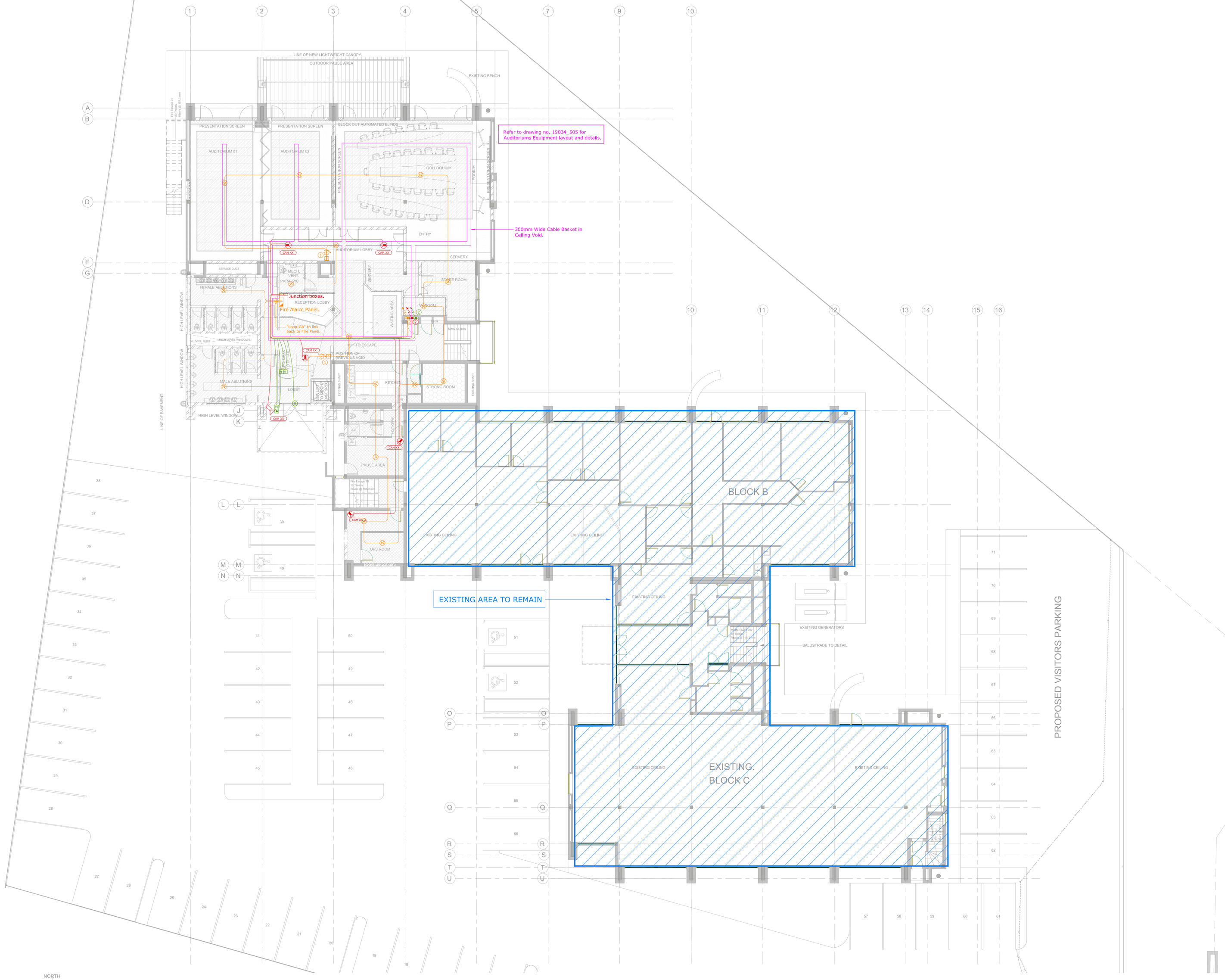
AA - ACCESS ALARM
AC - ACCESS CONTROL
CR - CARD READER
EO - EXIT OVERRIDE
AO - ALARM OVERRIDE

- C - COMMUNICATION PANEL/JUNCTION BOX
- INTERCOM MASTER STATION
- INTERCOM SLAVE/SUBSTATION
- INTERCOM CALL PUSH BUTTON UNIT
- HORN/TRUMPET LOUDSPEAKER
- CEILING FLUSH MOUNTED LOUDSPEAKER
- WALL MOUNTED LOUDSPEAKER
- TALK-BACK WALL MOUNTED LOUDSPEAKER
- COLUMN SPEAKER

- AT - ATTENUATOR
- MJ - MICROPHONE INPUT JACK IN 100x100 CONDUIT BOX
- SJ - SPEAKER OUTPUT JACK IN 100x100 CONDUIT BOX
- FM - FM OR AM ANTENNA AS SPECIFIED
- SOUND EQUIPMENT - CABINET RACK

COM - COMMUNICATION/INTERCOM
BGM - BACK GROUND MUSIC SYSTEM WITH OR WITHOUT AUDIBLE VOICE REINFORCEMENT (P.A.)
STROKE SOUNDER

- CEILING MOUNTED MICROPHONE
- MICROPHONE
- RADIO MICROPHONE
- FIRE ALARM PANEL/JUNCTION BOX
- ALARM BELL
- SMOKE IONISATION DETECTOR
- HEAT DETECTOR
- B - BREAK GLASS UNIT



GENERAL NOTES

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Do not scale this drawing.

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DRAWING NOTES:

1. Fire Break Glass unit mounted @ 1000mm affl and sounder mounted @ 1800mm affl.
2. 3 x 300mm x 300mm Junction Boxes for Electronic Services, mounted in riser cupboard. Link up to Floor above.

- s 100x100 CONDUIT BOX.
- S 100x100 CONDUIT BOX AT 500AFFL.
- S 100x100 CONDUIT BOX AT 1400AFFL
- s 100x50 CONDUIT BOX
- s 100x50 CONDUIT BOX AT 500AFFL.
- s 100x50 CONDUIT BOX AT 1100AFFL.
- ROUND CONDUIT BOX.
- ROUND DRAW BOX
- 100x100 DRAW BOX
- P 100x50 BOX BEHIND POWER SKIRTING

- CONDUIT TURNED UP ("D" FOR DOWN)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.
- 150 SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- SECTION OF CONDUIT OMMITED FOR CLARITY. 20mm. DIA. CONDUIT. 25mm. DIA. CONDUIT. 32mm. DIA. CONDUIT. 50mm. DIA. CONDUIT.

- CABLE ROUTE
- CABLE SLEEVE.
- OC - OVERHEAD CAST-IN
- OS - OVERHEAD ON SURFACE OR LAID ON CEILING.
- FC - FLOOR SLAB CAST-IN.
- E - EXPOSED ON SURFACE
- POWER SKIRTING TRUNKING
- CABLE TRAY/LADDER

- REFERENCE TO QUANTITY i.e. 3No.
- 2 REFERENCE TO A DETAIL i.e. DETAIL 2.
- 4 REFERENCE TO AN ELECTRICAL NOTE i.e. NOTE 4.
- #34 REFERENCE TO A STANDARD DRAWING i.e. STANDARD DRAWING No.34
- 6 CABLE NUMBER - REFER TO SCHEDULE FOR DETAILS

- TELEPHONE JUNCTION BOX.
- DATA JUNCTION BOX.
- DISTRIBUTION BOARD POSITION.
- TELEPHONE POINT.
- DATA/COMMS OUTLET.

- CCTV CAMERA
- CCTV CAMERA ON AUTO PANNING MOUNT
- CCTV CAMERA ON PAN & TILT MOUNT
- CCTV CAMERA ON AUTO PANNING IN DISCRETE OPAQUE DOME COVER
- CCTV CAMERA FIELD OF VIEW
- PASSIVE INFRARED CURTAIN DETECTOR

- INFRARED BEAM TRANSMITTER AND RECEIVER
- INFRARED OR ULTRASONIC MOTION DETECTOR
- DOOR MONITOR - FLATLINE OF SYMBOL FACES ATTACK SIDE
- X-RAY INSPECTION MACHINE OR LETTER/ PARCEL BOMB /EXPLOSIVE DETECTOR
- WALK THROUGH METAL DETECTOR

- P 220 VOLT POWER OUTLET FACILITY
- S SIGNAL OUTLET 2x4/4x4 FLUSH CONDUIT BOX.
- SECURITY CONTROL PANEL/JUNCTION BOX
- ELECTRIC LOCK/STRIKE
- KEY SWITCH
- FLOOR PEDAL SWITCH
- SPRING RETURN PUSH BUTTON/LEVER RELEASE

DM - DOOR MONITOR
CAM - CAMERA
ER - ELECTRIC RELEASE
EL - ELECTRIC LOCK/STRIKE
MA - MOTION ALARM

- CR ACCESS CONTROL CARD READER
- CR POLE MOUNTED ACCESS CONTROL CARD READER
- VEHICLE BARRIER BOOM CONTROLLER

AA - ACCESS ALARM
AC - ACCESS CONTROL
CR - CARD READER
EO - EXIT OVERRIDE
AO - ALARM OVERRIDE

- C COMMUNICATION PANEL/JUNCTION BOX
- INTERCOM MASTER STATION
- INTERCOM SLAVE/SUBSTATION
- INTERCOM CALL PUSH BUTTON UNIT
- HORN/TRUMPET LOUDSPEAKER
- CEILING FLUSH MOUNTED LOUDSPEAKER
- WALL MOUNTED LOUDSPEAKER
- TALK-BACK WALL MOUNTED LOUDSPEAKER
- COLUMN SPEAKER

- AT ATTENUATOR
- MJ MICROPHONE INPUT JACK IN 100x100 CONDUIT BOX
- SJ SPEAKER OUTPUT JACK IN 100x100 CONDUIT BOX
- FM FM OR AM ANTENNA AS SPECIFIED
- SOUND EQUIPMENT - CABINET RACK

COM - COMMUNICATION/INTERCOM
BGM - BACK GROUND MUSIC SYSTEM WITH OR WITHOUT AUDIBLE VOICE REINFORCEMENT (P.A.)
- STROKE SOUNDER

- CEILING MOUNTED MICROPHONE
- MICROPHONE
- RADIO MICROPHONE
- FIRE ALARM PANEL/JUNCTION BOX
- ALARM BELL
- SMOKE IONISATION DETECTOR
- HEAT DETECTOR
- B BREAK GLASS UNIT

REV	DATE	BY	DESCRIPTION	CHK
T00	30/06/20	VT	For Tender Purposes	MK
0	15/05/20	VT	Original Issue	MK

REVISIONS

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FAX: + 27 (0)21) 2007306
E-mail: ibua@iburg.co.za

PROJECT/SERVICES
Umalusi Existing Offices
Additions and Alterations

Electronic Services

TITLE
Ground Floor
Smoke Detection; CCTV and Access Control Device and Wiring Layout

ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	02/20	MK	1:100

PAPER SIZE: A0

PROJECT No.	DRAWING No.	SHEET:	REV:
19034	800		T00

FILE:19034_300 LAYERS:

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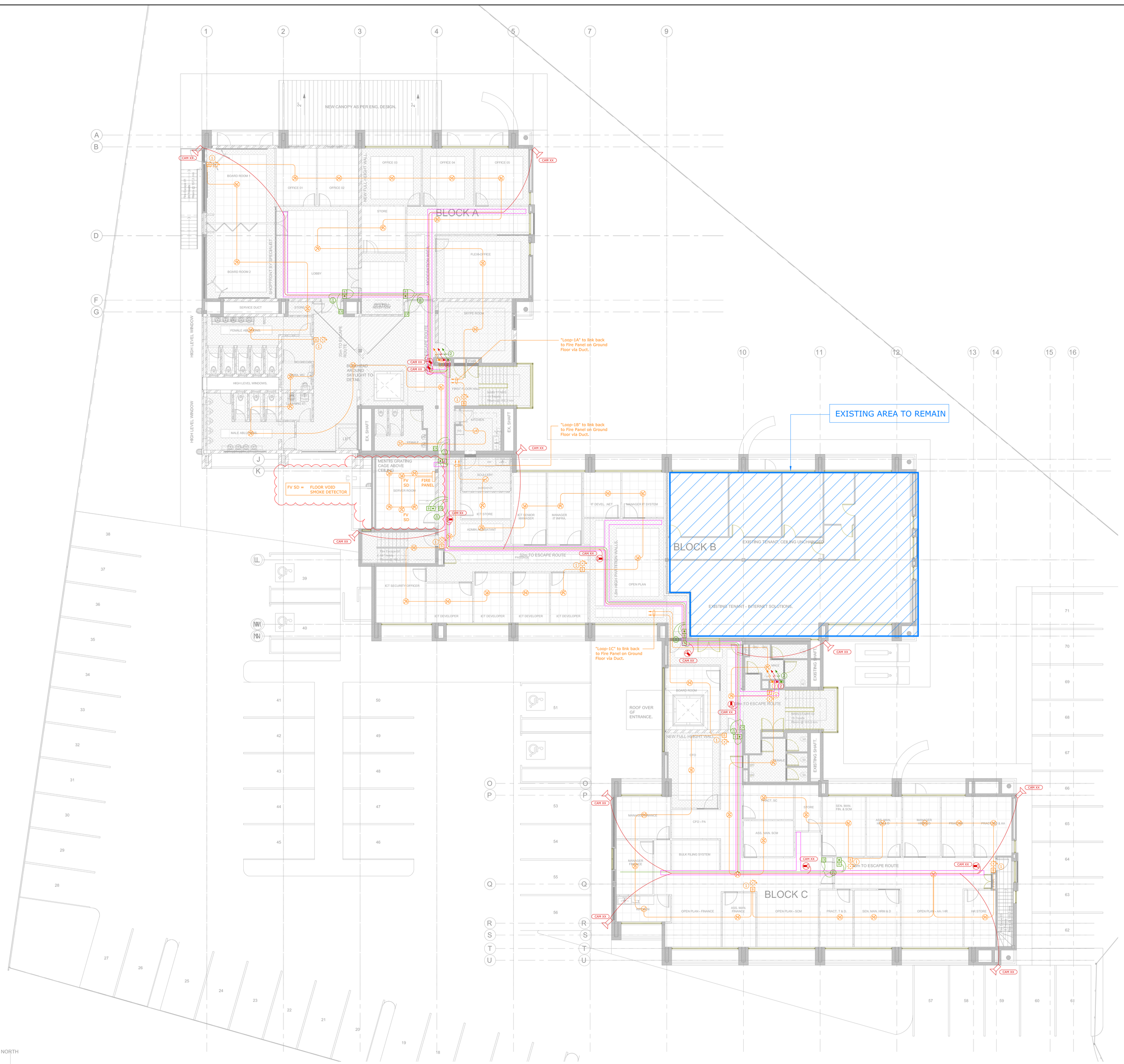

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DRAWING NOTES:

1. Fire Break Glass unit mounted @ 1000mm affl and sounder mounted @ 1800mm affl.
2. 3 x 300mm x 300mm Junction Boxes for Electronic Services, mounted in riser cupboard. Link up to Floor above.

- ● 5 100x100 CONDUIT BOX.
- ● 5 100x100 CONDUIT BOX AT 500AFFL.
- ● 5 100x100 CONDUIT BOX AT 1400AFFL
- ● 1 100x50 CONDUIT BOX
- ● 1 100x50 CONDUIT BOX AT 500AFFL.
- ● 1 100x50 CONDUIT BOX AT 1100AFFL.
- ● ROUND CONDUIT BOX.
- ✖ ROUND DRAW BOX
- ■ 2 100x100 DRAW BOX
- ■ P 100x50 BOX BEHIND POWER SKIRTING

- CONDUIT TURNED UP ("D" FOR DOWN)
- DOWN CONDUCTOR TO EARTH OR EARTH TIE.
- 150 SQUARE GALV. STEEL DRAW TRAY SIZE AS SHOWN.
- SECTION OF CONDUIT OMMITED FOR CLARITY, 20mm. DIA. CONDUIT, 25mm. DIA. CONDUIT, 32mm. DIA. CONDUIT, 50mm. DIA. CONDUIT.

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- CABLE SLEEVE.
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- B BREAK GLASS UNIT

REV	DATE	BY	DESCRIPTION	CHK
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0	15/05/20	VT	Original Issue	MK

REVISIONS

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"POWERING DEVELOPMENT"
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FAX: +27 (0)31 2667340
E-mail: ibuta@ibuta.co.za

PROJECT/SERVICES
Umalusi Existing Offices Additions and Alterations

Electronic Services

TITLE
First Floor
Smoke Detection; CCTV and Access Control Devices and Wiring Layout

ENGINEER:	DRAWN BY	DATE:	CHECKED	SCALE:
MK	VT	02/20	MK	1:100

PROJECT No.: 19034 | DRAWING No.: 801 | SHEET: | REV.: T00 | PAPER SIZE: A0

FILE: 19034_301 LAYERS:

A0_MST_1