

ELECTRICAL DRAWINGS INDEX

DRAWING INDEX

[illegible]

World Bank

FDRE - Ministry of Finance UNOPS - ETMCO

Response -Recovery-Resilience for Conflict Affected Communities in Ethiopia

SEREGNA PRIMARY SCHOOL

LEGEND

Existing

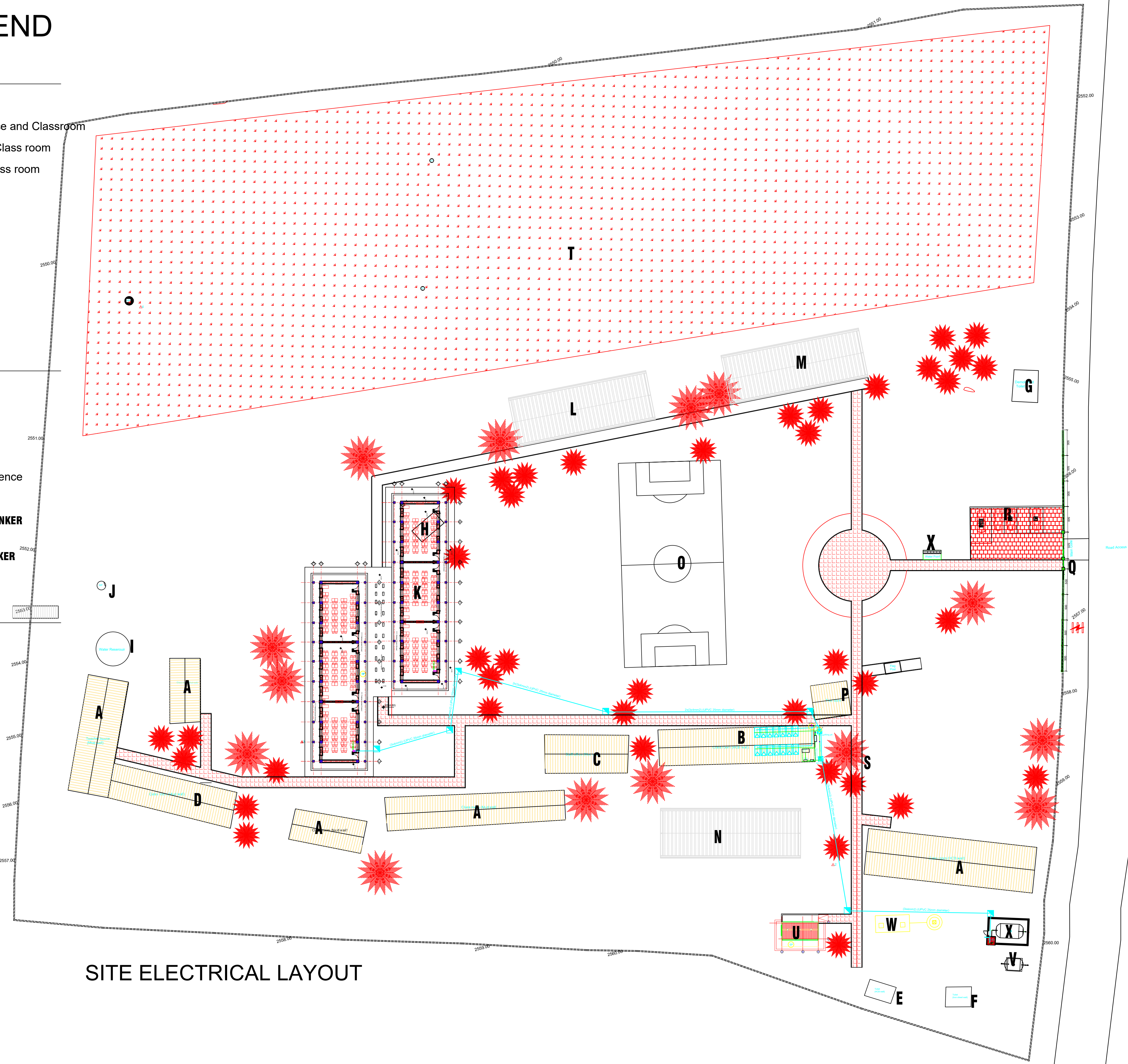
- A- Class room
- B- Library, Store, Office and Classroom
- C- Teaching aid and Class room
- D- Laboratory and Class room
- E- Boy's latrine
- F- Girls Latrine (CIS)
- G- Demolished latrine
- H- Guard house
- I- Rain water reservior
- J- Hand pump
- T- Farm area

New

- K- Class room
- O- Sport field
- P- Shaded play area
- Q- Parking
- R- Entrance gate and fence
- S- Pedestrian walkway
- V - **ELEVATED WATER TANKER**
- W - **SEPTIC TANK**
- X - **GROUND WATER TANKER**
- Y – Σταφφ λατρινε

Future expansion

- L- Laboratory
- M- Library
- N- Kitchen and Cafe



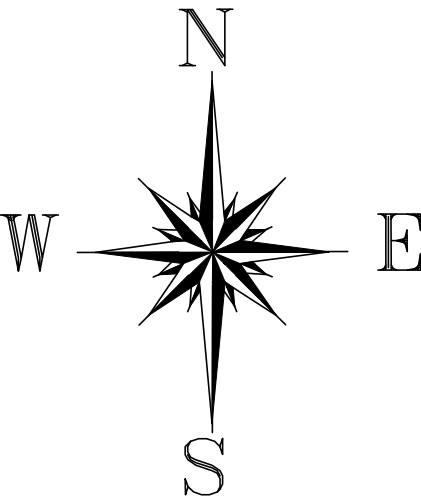
SITE ELECTRICAL LAYOUT

GENERAL NOTES:

NOTE

- 1 - ALL DIMENSIONS ARE IN METERS
- 2 - ALL BRANCH BREAKERS ARE 10KA RATED INTERRUPTING CAPACITY
- 3 - DIVERSITY FACTOR CALCULATED : = 1
- 4 - ALL ELEVATIONS ARE REFERRED TO ABOVE FINISHED FLOOR LEVEL (A.F.F.L)
- 5 - ALL JUNCTION BOXES ARE NOT SHOWN BUT THEY ARE INSTALLED EVERY TWO BENDS
- 6- ALL CONDUITS USED FOR LIGHTING & SOCKET OUTLETS ARE PVC Ø 16MM, AND DEPENDING ON THE NUMBER OF LINES INSIDE CONDUITS FROM JUNCTION BOX TO EVERY INDIVIDUAL POINT.
- 7- INSTALLATION ELEVATIONS ABOVE F.F. ARE @1.40M FOR SWITCH, @2.00M FOR KWHM, @0.60M FOR SOCKET OUTLETS.
- 8- CABLE TYPE FOR THE WIRING TO BE USED SHALL BE NYY 0.6/1KV
- 9- SWITCHES WILL BE LEGRAND MOSAIC, DECOR/SUNO TYPE
- 10- ILLUMINATION LEVEL FOR EACH ROOM IS MAINTAINED AS PER ETHIOPIAN BUILDING STANDARD CODE EBCS-10.
- 11.WARNING TAPE TO BE USED FOR ALL UNDERGROUND CABLES.

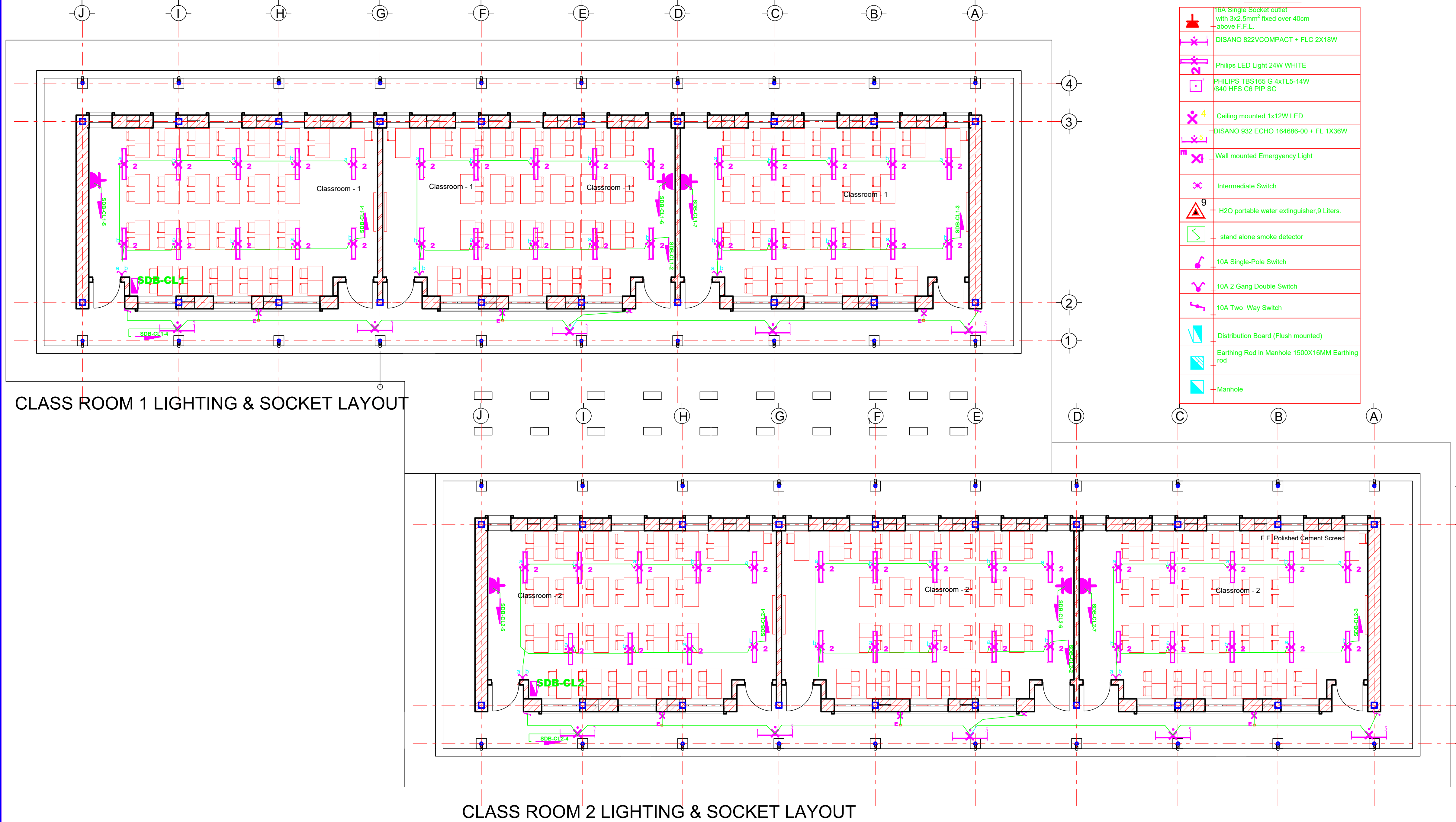
| | | | | | |
|-------|-------|--------------|--|--|----------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 0 | | | | | |
| Rev.: | Date: | Description: | | | Approved |



KEY PLAN

| | |
|---|---|
| All information in this document is the property of UNOPS and cannot be copied anywhere but in this project without prior written consent of UNOPS. | |
| Funded By: | Partner: |
| World Bank | FDRE - Ministry of Finance |
| Program: | Implemented By: |
| Response -Recovery-Resilience for conflict affected communities in Ethiopia | FDRE - Ministry of Finance UNOPS - ETMCO |
| Project Name: | Design: |
| SERENGA PRIMARY SCHOOL | UNOPS-ETMCO |
| | |

| | | | | |
|--|-------------|----------------|----------|---------|
| Drawing Title: Site electrical plan | | | | |
| Designed by | Discipline: | Dr. No: | Tot. No: | Rev No: |
| YG | EL | 01 | 09 | R0 |
| Drawn: | Checked: | Approved: | Size: | Scale: |
| LA | YG | | A1 | 1:100 |
| | | Date: | Rev.: | |
| | | 02 / 06 / 2023 | 0 | |



LEGEND

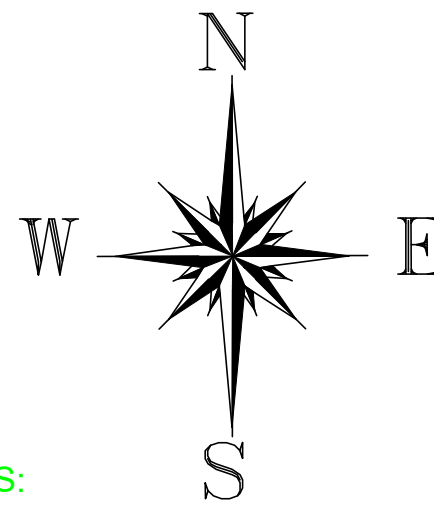
| | |
|--|---|
| | 10A Single Socket outlet with 3x2.5mm ² fixed over 40cm above F.F.L. |
| | DISANO 822VCOMPACT + FLC 2X18W |
| | Philips LED Light 24W WHITE |
| | PHILIPS TBS165 G 4xTL5-14W /840 HFS C6 PIP SC |
| | Ceiling mounted 1x12W LED |
| | DISANO 932 ECHO 164686-00 + FL 1X36W |
| | Wall mounted Emergency Light |
| | Intermediate Switch |
| | H2O portable water extinguisher,9 Liters. |
| | stand alone smoke detector |
| | 10A Single-Pole Switch |
| | 10A 2 Gang Double Switch |
| | 10A Two Way Switch |
| | Distribution Board (Flush mounted) |
| | Earthing Rod in Manhole 1500X16MM Earthing rod |
| | Manhole |

GENERAL NOTES:

NOTE

- 1 - ALL DIMENSIONS ARE IN METERS
- 2 - ALL BRANCH BREAKERS ARE 10KA RATED INTERRUPTING CAPACITY
- 3 - DIVERSITY FACTOR CALCULATED : = 1
- 4 - ALL ELEVATIONS ARE REFERRED TO ABOVE FINISHED FLOOR LEVEL (A.F.F.L)
- 5 - ALL JUNCTION BOXES ARE NOT SHOWN BUT THEY ARE INSTALLED EVERY TWO BENDS
- 6- ALL CONDUITS USED FOR LIGHTING & SOCKET OUTLETS ARE PVC Ø 16MM, AND DEPENDING ON THE NUMBER OF LINES INSIDE CONDUITS FROM JUNCTION BOX TO EVERY INDIVIDUAL POINT.
- 7- INSTALLATION ELEVATIONS ABOVE F.F. ARE @1.40M FOR SWITCH, @2.00M FOR KWHM, @0.60M FOR SOCKET OUTLETS.
- 8- CABLE TYPE FOR THE WIRING TO BE USED SHALL BE NYY 0.6/1KV
- 9- SWITCHES WILL BE LEGRAND MOSAIC, DECOR/SUNO TYPE
- 10- ILLUMINATION LEVEL FOR EACH ROOM IS MAINTAINED AS PER ETHIOPIAN BUILDING STANDARD CODE EBCS-10.
- 11.WARNING TAPE TO BE USED FOR ALL UNDERGROUND CABLES.

| | | | |
|-------|-------|--------------|----------|
| Rev.: | Date: | Description: | Approved |
| 0 | | | |

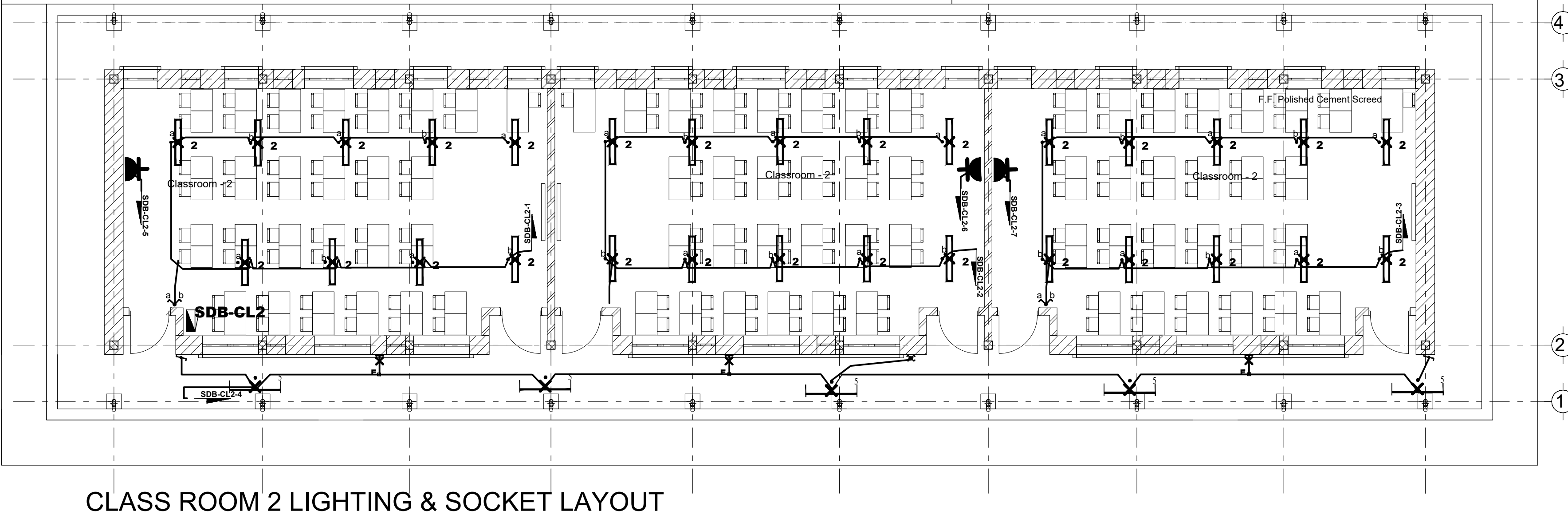
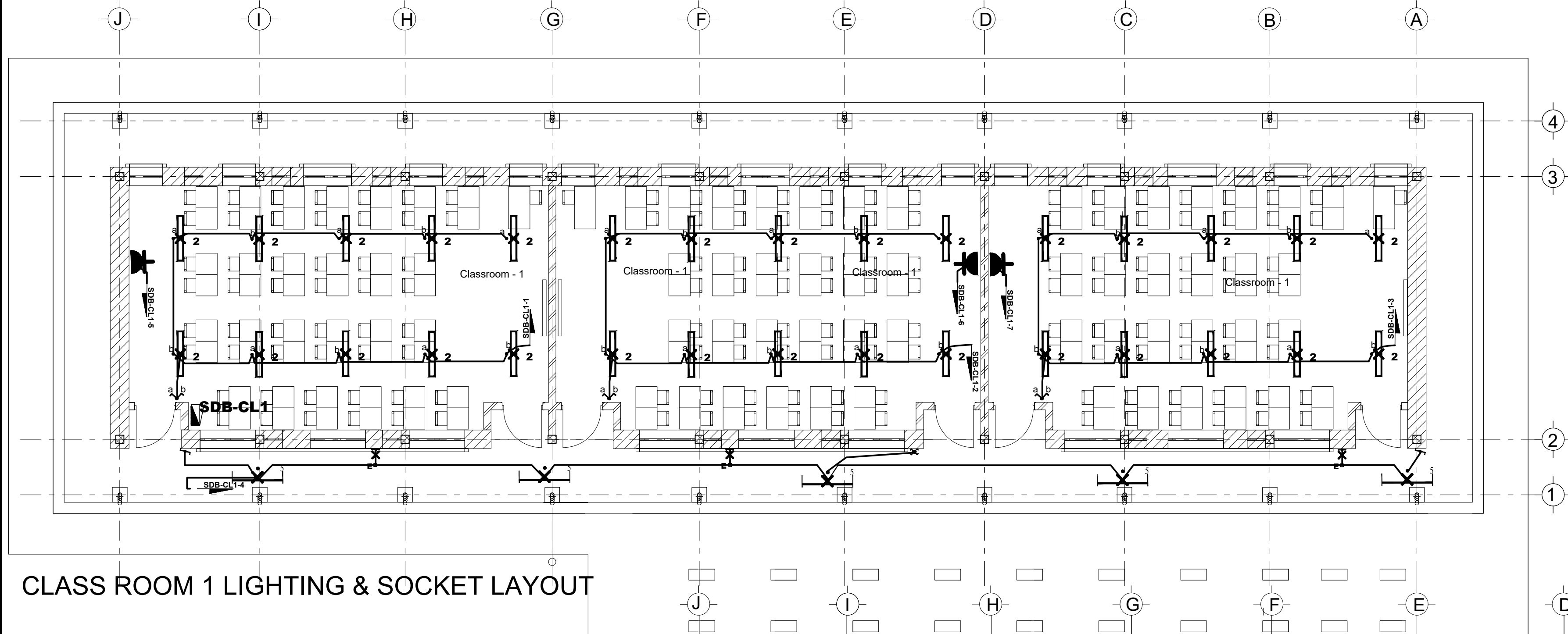


GENERAL NOTES:

KEY PLAN

| | | | |
|---|--|--|--|
| Funded By: | | Partner: | |
| World Bank | | FDRE- Ministry of Finance | |
| Program: | | Implemented By: | |
| Response -Recovery-Resilience for conflict affected communities in Ethiopia | | FDRE - Ministry of Finance UNOPS - ETMCO | |
| Project Name: | | Design: | |
| SERENGA PRIMARY SCHOOL | | UNOPS-ETMCO | |
| | | D 15DF4E6C.png | |

| | | | | |
|---------------------------------------|-------------|-----------|----------------|---------|
| Drawing Title: | | | | |
| Class Room lighting and socket layout | | | | |
| Designed by | Discipline: | Dr. No: | Tot. No: | Rev No: |
| YG | EL | 02 | 09 | R0 |
| Drawn: | Checked: | Approved: | Size: | Scale: |
| LA | YG | | A1 | 1:100 |
| | | Date: | 02 / 06 / 2023 | Rev.: |
| | | | | 0 |



LEGEND

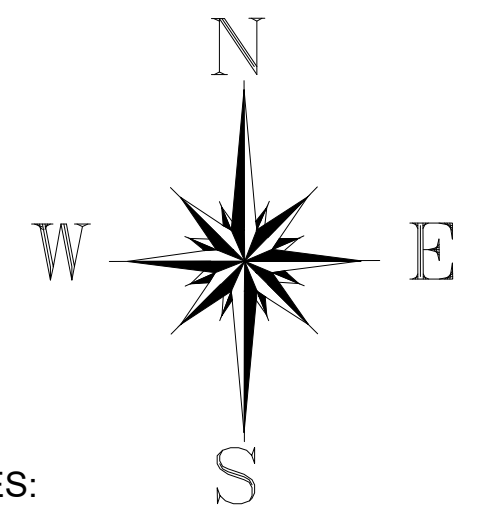
| | |
|--|---|
| | 16A Single Socket outlet with 3x2.5mm² fixed over 40cm above F.F.L. |
| | DISANO 822VCOMPACT + FLC 2X18W |
| | Philips LED Light 24W WHITE |
| | PHILIPS TBS165 G 4xTL5-14W /840 HFS C6 PIP SC |
| | Ceiling mounted 1x12W LED |
| | DISANO 932 ECHO 164686-00 + FL 1X36W |
| | Wall mounted Emergency Light |
| | Intermediate Switch |
| | H2O portable water extinguisher, 9 Liters. |
| | stand alone smoke detector |
| | 10A Single-Pole Switch |
| | 10A 2 Gang Double Switch |
| | 10A Two Way Switch |
| | Distribution Board (Flush mounted) |
| | Earthing Rod in Manhole 1500X16MM Earthing rod |
| | Manhole |

GENERAL NOTES:

NOTE

- 1 - ALL DIMENSIONS ARE IN METERS
- 2 - ALL BRANCH BREAKERS ARE 10KA RATED INTERRUPTING CAPACITY
- 3 - DIVERSITY FACTOR CALCULATED : = 1
- 4 - ALL ELEVATIONS ARE REFERRED TO ABOVE FINISHED FLOOR LEVEL (A.F.F.L)
- 5 - ALL JUNCTION BOXES ARE NOT SHOWN BUT THEY ARE INSTALLED EVERY TWO BENDS
- 6- ALL CONDUITS USED FOR LIGHTING & SOCKET OUTLETS ARE PVC Ø 16MM, AND DEPENDING ON THE NUMBER OF LINES INSIDE CONDUITS FROM JUNCTION BOX TO EVERY INDIVIDUAL POINT.
- 7- INSTALLATION ELEVATIONS ABOVE F.F. ARE @1.40M FOR SWITCH, @2.00M FOR KWHM, @0.60M FOR SOCKET OUTLETS.
- 8- CABLE TYPE FOR THE WIRING TO BE USED SHALL BE NYY 0.6/1KV
- 9- SWITCHES WILL BE LEGRAND MOSAIC, DECOR/SUNO TYPE
- 10- ILLUMINATION LEVEL FOR EACH ROOM IS MAINTAINED AS PER ETHIOPIAN BUILDING STANDARD CODE EBCS-10.
11. WARNING TAPE TO BE USED FOR ALL UNDERGROUND CABLES.

| | | | |
|-------|-------|--------------|----------|
| Rev.: | Date: | Description: | Approved |
| 0 | | | |



GENERAL NOTES:

KEY PLAN

| | |
|---|--|
| All information in this document is the property of UNOPS and cannot be copied anywhere but in this project without prior written consent of UNOPS. | |
| Funded By: | Partner: |
| World Bank | FDRE- Ministry of Finance |
| Program: | Implemented By: |
| Response -Recovery-Resilience for conflict affected communities in Ethiopia | FDRE - Ministry of Finance UNOPS - ETMCO |
| Project Name: | Design: |
| SERENGA PRIMARY SCHOOL | UNOPS-ETMCO |
| | |

Drawing Title:

Class Room lighting and socket layout

















| | | | | |
|-------------|-------------|----------------|----------|---------|
| Designed by | Discipline: | Dr. No: | Tot. No: | Rev No: |
| YG | EL | 02 | 09 | R0 |
| Drawn: | Checked: | Approved: | Size: | Scale: |
| LA | YG | | A1 | 1:100 |
| | | Date: | Rev.: | |
| | | 02 / 06 / 2023 | 0 | |

SDB-CL1/2

| Distribution Board Schedule | | | | | | | | | | | | |
|--|---------------------|-----------------------|------------------------|----------------------------------|------------|--------------------------------------|--------------------|-------|---|---|--------|--|
| Panel Name: SDB-CL1/2 | | | | | | | | | | | | |
| Service Voltage: 220Vdc, (2-poles), 2 wire , AC | | | Bus Type: TPN + PE | | | | Mounting: Flush | | | | | |
| | | | Bus Rating: 32A/10KA | | | | IP Rating: IP = 44 | | | | | |
| | | | Enclosure: Steel Sheet | | | | | | | | | |
| Circuit # | Load Description | | Load (KW) | Circuit Breaker Rating (A) | # of Poles | Wire Crosssection (mm ²) | Conduit Ø (mm) | Phase | | | Remark | |
| | | | | | | | | R | S | T | | |
| 01 | Lighting | | 0.24 | 10 | 2 | 3x1.5 | 16 | • | | | | |
| 02 | Lighting | | 0.24 | 10 | 2 | 3x1.5 | 16 | • | | | | |
| 03 | Lighting | | 0.24 | 10 | 2 | 3x1.5 | 16 | • | | | | |
| 04 | Lighting | | 0.216 | 10 | 2 | 3x1.5 | 16 | • | | | | |
| 05 | Socket outlet | | 0.2 | 16 | 2 | 3x2.5 | 16 | • | | | | |
| 06 | Socket outlet | | 0.2 | 16 | 2 | 3x2.5 | 16 | • | | | | |
| 07 | Socket outlet | | 0.2 | 16 | 2 | 3x2.5 | 16 | • | | | | |
| 08 | Reserve | | 0.2 | 16 | 2 | | | • | | | | |
| | Reserve Space (25%) | | | | | | | • | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | Main Switch | 20A/2P, MCB with 30mA | | KW Connected (P _{tot}) | | | | 1.54 | | | | |
| | Feeder Cable | 3x4mm ² | | Demand Factor | | | | 0.70 | | | | |
| | U.V.C. Conduit | Ø25mm | | KW Demand (P _{Max}) | | | | 1.1 | | | | |
| | Power Source | MDB | | Current (A) | | | | 6.25 | | | | |

| Item No | Mounting | Lamp | | |
|---------|-----------------|------|------|--|
| | | # | [W] | Type |
| 1 | Ceiling/Surface | 2 | 2x18 | DISANO 822VCOMPACT + FLC |
| 2 | Ceiling/Surface | 1 | 24 | Philips LED Light 24W WHITE |
| 3 | Ceiling/Surface | 4 | 14 | PHILIPS TBS165 G 4xTL5-14W/840 HFS C6 PIP SC |
| 4 | Ceiling/Surface | 1 | 12 | RZB 10337.002.01 LED WITH 1X12W LAMP |
| 5 | Ceiling/Surface | 1 | 36 | DISANO 932 ECHO 164686-00 + FL 1X36W |

LEGEND

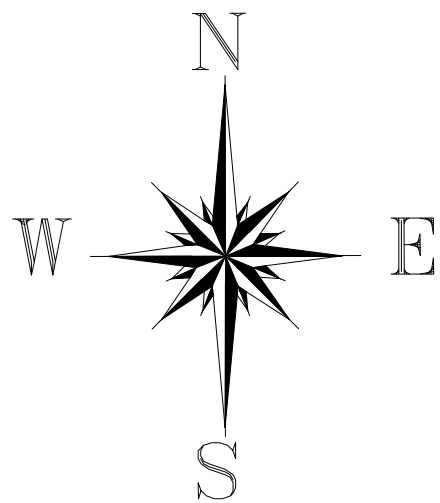
| | |
|---|--|
|  | 16A Single Socket outlet with 3x2.5mm ² fixed over 40cm above F.F.L |
|  | DISANO 822V/COMPACT + FLC 2X18W |
|  | Philips LED Light 24W WHITE |
|  | PHILIPS TBS185 G 4xT5-L5-14W 840 HFS C6 RFP SC |
|  | Ceiling mounted 1x12W LED |
|  | DISANO 932 ECHO 164686-00 + FL 1X36W |
|  | Wall mounted Emergency Light |
|  | Intermediate Switch |
|  | H2O portable water extinguisher 9 Liters, |
|  | stand alone smoke detector |
|  | 10A Single-Pole Switch |
|  | 10A 2 Gang Double Switch |
|  | 10A Two Way Switch |
|  | Distribution Board (Flush mounted) |
|  | Earthing Rod in Manhole 1500X16MM Earthing rod |
|  | Manhole |

GENERAL NOTES:

NOTE


- 1- ALL DIMENSIONS ARE IN METERS
- 2- ALL BRANCH BREAKERS ARE 10KA
RATED INTERRUPTING CAPACITY
- 3- DIVERSITY FACTOR CALCULATED : = 1
- 4- ALL ELEVATIONS ARE REFEREED TO ABOVE
FINISHED FLOOR LEVEL (A.F.F.L)
- 5- ALL JUNCTION BOXES ARE NOT SHOWN BUT
THEY
ARE INSTALLED EVERY TWO BENDS
- 6- ALL CONDUITS USED FOR LIGHTING &
SOCKET OUTLETS ARE
PVC Ø 16MM, AND DEPENDING ON THE
NUMBER OF LINES INSIDE CONDUITS FROM
JUNCTION BOX TO EVERY INDIVIDUAL POINT.
- 7- INSTALLATION ELEVATIONS ABOVE F.F. ARE
@1.40M FOR SWITCH,
@2.00M FOR KWHM, @0.60M FOR SOCKET
OUTLETS.
- 8- CABLE TYPE FOR THE WIRING TO BE USED
SHALL BE NYY 0.6/1KV
- 9- SWITCHES WILL BE LEGRAND MOSAIC,
DECOR/SUNO TYPE
- 10- ILLUMINATION LEVEL FOR EACH ROOM IS
MAINTAINED AS PER ETHIOPIAN
BUILDING STANDARD CODE EBCS-10.
11. WARNING TAPE TO BE USED FOR ALL
UNDERGROUND CABLES.

| | | | | |
|-------|-------|--------------|----------|--|
| | / | / | | |
| | / | / | | |
| | / | / | | |
| | / | / | | |
| | / | / | | |
| | / | / | | |
| | / | / | | |
| 0 | / | / | | |
| Rev.: | Date: | Description: | Approved | |



KEY PLAN

All information in this document is the property of UNOPS and cannot be copied anywhere but in this project without prior written consent of UNOPS

| | |
|---|---|
| Funded By: | Partner: |
| World Bank | FDRE- Ministry of Finance |
| Program: | Implemented By: |
| Response -Recovery-Resilience for conflict affected communities in Ethiopia | FDRE - Ministry of Finance UNOPS - ETMCO |
| Project Name: | Design: |
| SERENGA PRIMARY SCHOOL | UNOPS-ETMCO |
| |  |

Drawing Title

Distribution board schedule

| | | | | | | |
|-------------|----------|-----------|-------------|---------|------------|---------|
| Designed by | | | Discipline: | Dr. No: | Tot. No: | Rev No: |
| YG | | | EL | 03 | 09 | R0 |
| Drawn: | Checked: | Approved: | Size: | Scale: | Date: | Rev.: |
| LA | YG | | A1 | 1:100 | 02/06/2023 | 0 |














MDB

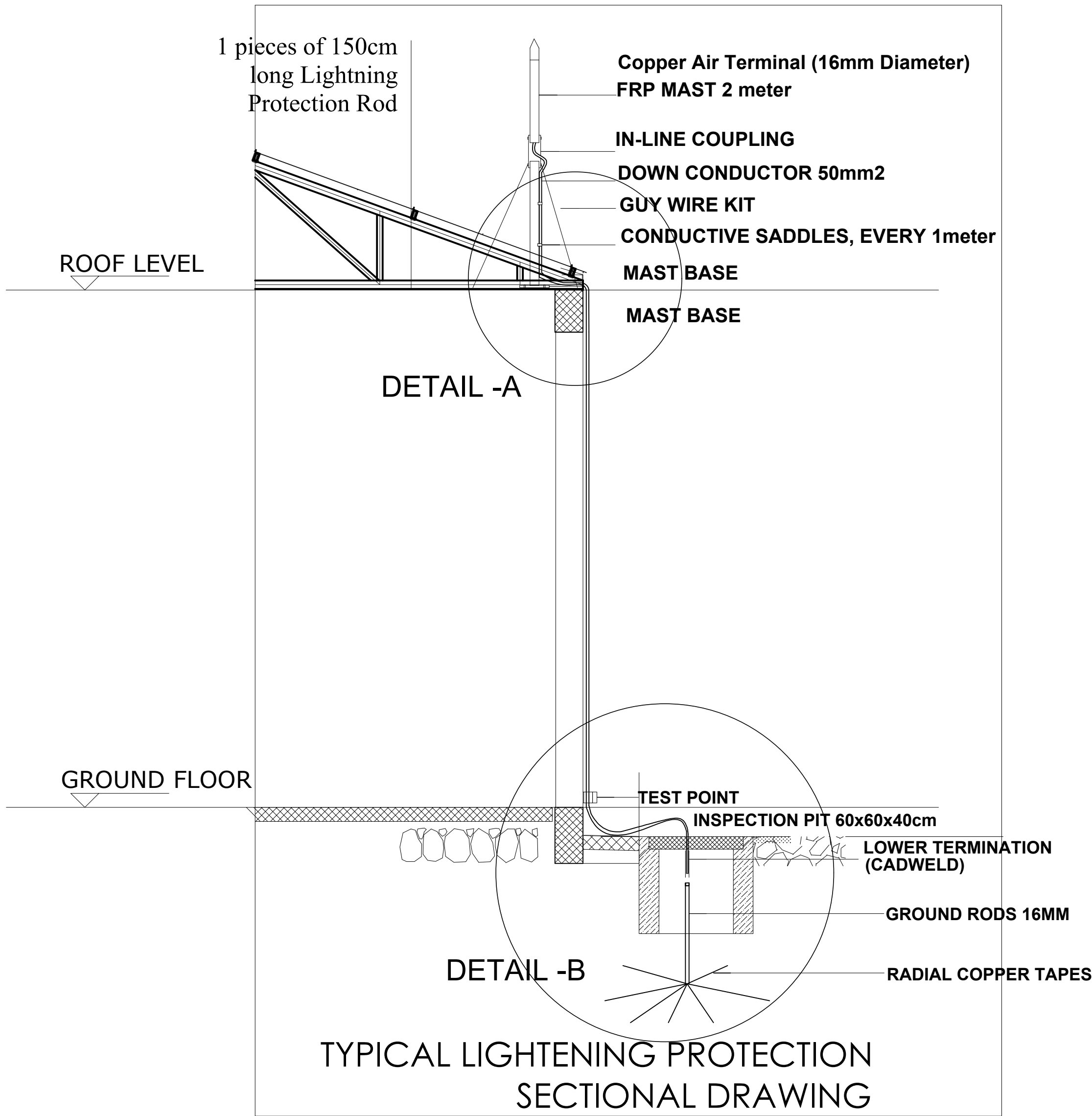
| | | | | | | | | | | |
|--|---------------------|-----------|----------------------------|------------------------|-------------------------|---------------------|--------------------|---|---|--------|
| Panel Name: MDB | | | | | | | | | | |
| Service Voltage: 220Vdc, (2-poles), 2 wire , AC | | | | Bus Type: TPN + PE | | | Mounting: Flush | | | |
| | | | | Bus Rating: 100A/10KA | | | IP Rating: IP = 44 | | | |
| | | | | Enclosure: Steel Sheet | | | | | | |
| Circuit # | Load Description | Load (KW) | Circuit Breaker Rating (A) | # of Poles | Wire Crosssection (mm²) | UPVC Conduit Ø (mm) | Phase | | | Remark |
| | | | | | | | R | S | T | |
| 01 | SDB-CL1 | 1.1 | 20 | 2 | 3x4 | 25 | ● | | | |
| 02 | SDB-CL2 | 1.1 | 20 | 2 | 3x4 | 25 | ● | | | |
| 03 | Water Pump | 0.7 | 20 | 2 | 3x4 | 25 | ● | | | |
| | Reserve Space (25%) | | | | | | | | | |

| | | | | | |
|--|----------------|-----------------------|--|----------------------------------|------|
| | Main Switch | 32A/2P, MCB with 30mA | | KW Connected (P _{Tot}) | 2.9 |
| | Feeder Cable | 3x6mm² | | Reserve | 30% |
| | U.V.C. Conduit | Ø50mm | | Diversity | 1 |
| | Power Source | INVERTER | | KW Demand (P _{Max}) | 3.8 |
| | | | | Current (A) | 21.6 |

| Light Fitting Schedule | | | | |
|------------------------|-----------------|------|------|--|
| Item No | Mounting | Lamp | | |
| | | # | [W] | Type |
| 1 | Ceiling/Surface | 2 | 2x18 | DISANO 822VCOMPACT + FLC |
| 2 | Ceiling/Surface | 1 | 24 | Philips LED Light 24W WHITE |
| 3 | Ceiling/Surface | 4 | 14 | PHILIPS TBS165 G 4xTL5-14W/840 HFS C6 PIP SC |
| 4 | Ceiling/Surface | 1 | 12 | RZB 10337.002.01 LED WITH 1X12W LAMP |
| 5 | Ceiling/Surface | 1 | 36 | DISANO 932 ECHO 164686-00 + FL 1X36W |

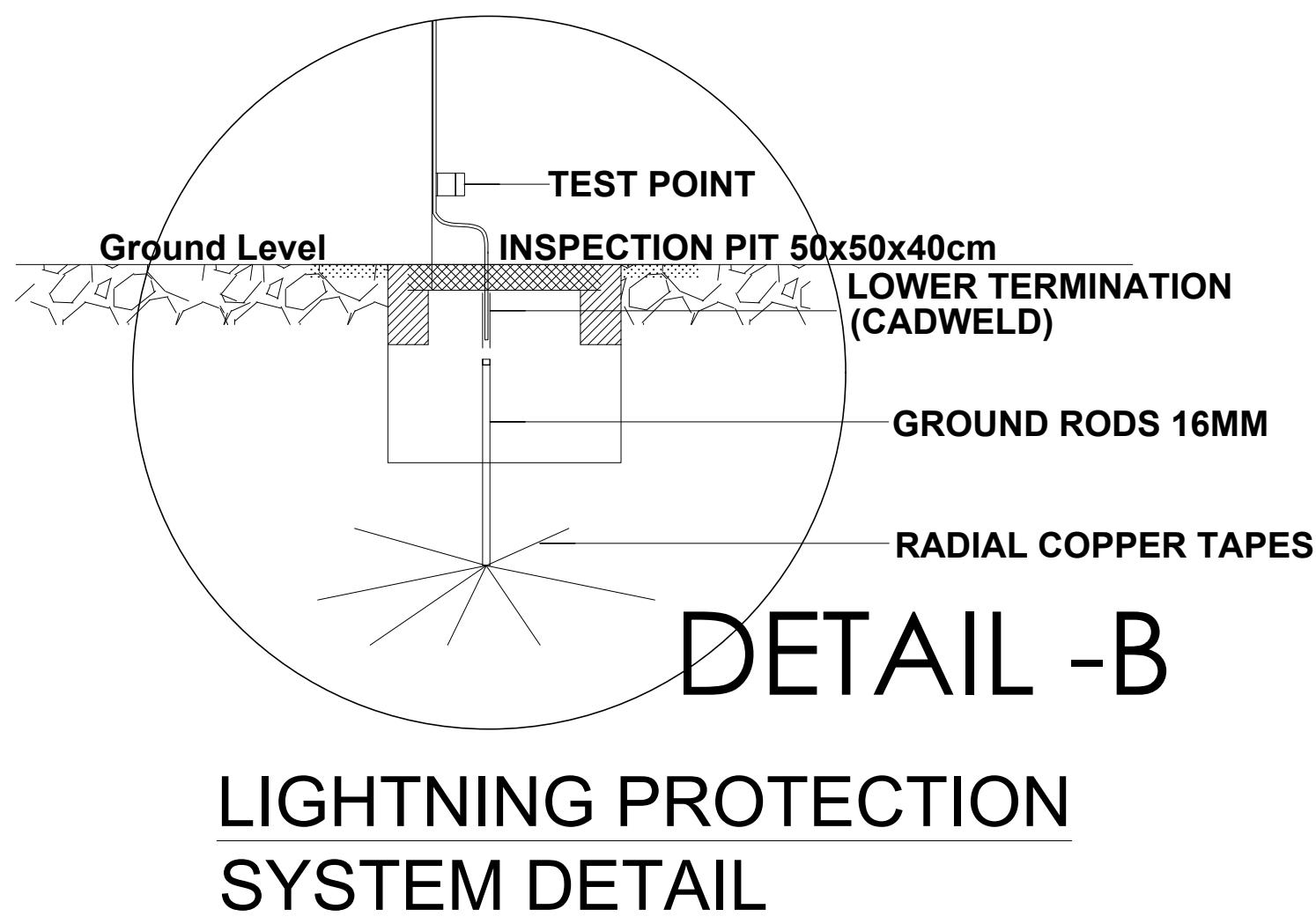
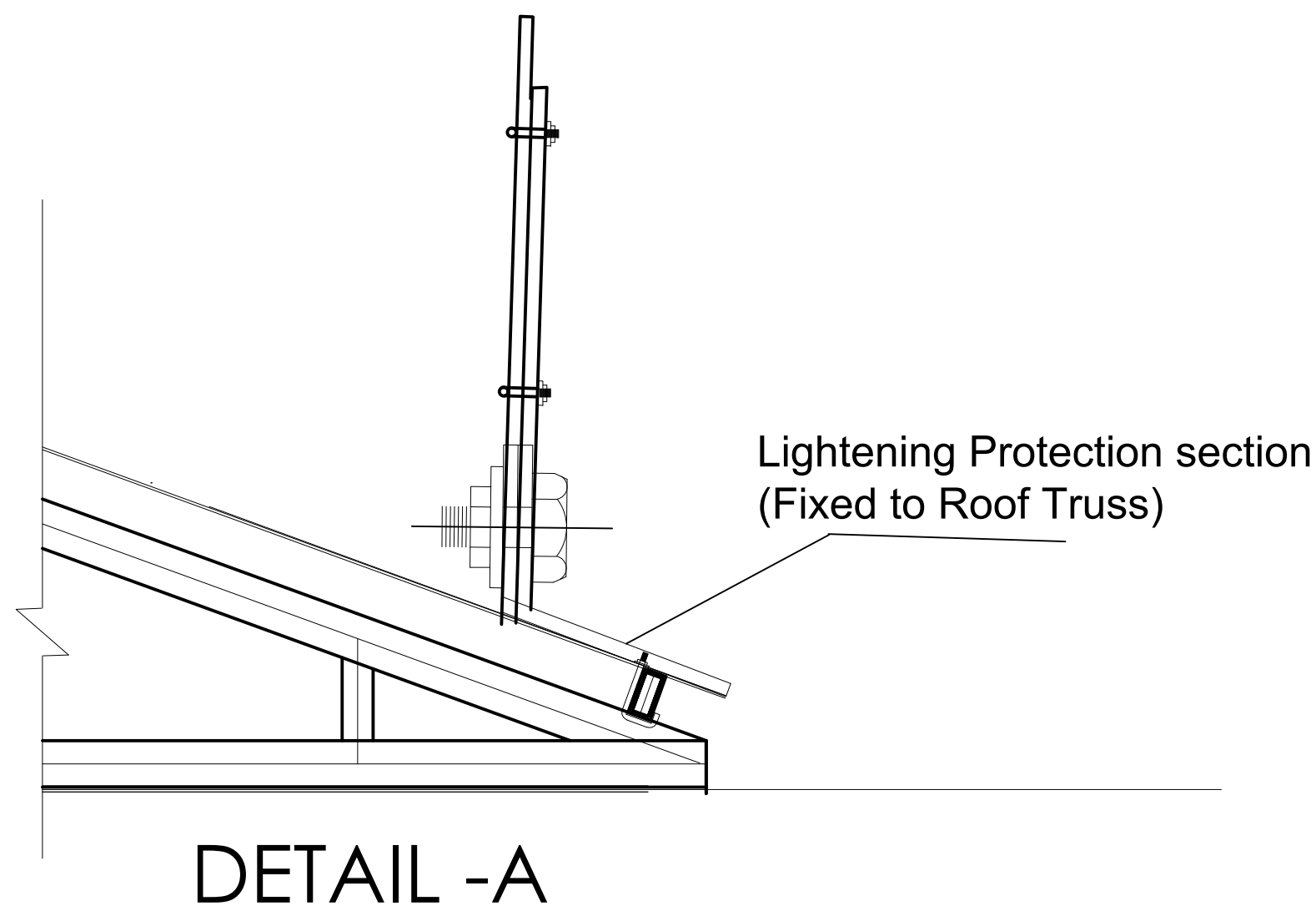
LEGEND

| | |
|---|---|
|  | 16A Single Socket outlet with 3x2 5mm" fixed over 40cm - above F.F.L. |
|  | DISANO 822V/COMPACT + FLC 2X18W |
|  | Philips LED Light 24W WHITE |
|  | PHILIPS TBS165 G 4xTL5-14W /840 HFS C6 PIP SC |
|  | 4 Ceiling mounted 1x12W LED |
|  | DISANO 932 ECHO 164686-00 + FL 1X36W |
|  | Wall mounted Emergency Light |
|  | Intermediate Switch |
|  | 9 H2O portable water extinguisher, 9 Liters. |
|  | stand alone smoke detector |
|  | 10A Single-Pole Switch |
|  | 10A 2 Gang Double Switch |
|  | 10A Two Way Switch |
| | Distribution Board (Flush mounted) |
| | Earthing Rod in Manhole 1500X16MM Earthing rod |
| | Manhole |



NOTE

- 1 - Copper Lightening Protection shall not be installed directly on aluminum roofing, siding or other aluminum surfaces.
- 2 - Down conductor entering corrosive soil shall be protected against corrosion for not less than 915mm above ground level and for entire length below grade level.
- 3- Service conduit entering a building underground shall be suitably drained. keeping the slope suitable to drain.

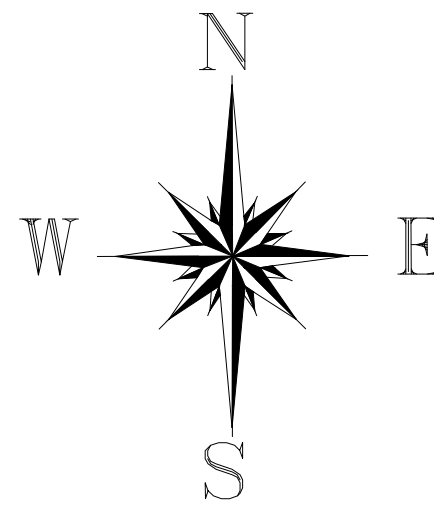


GENERAL NOTES:

NOTE

- 1 - ALL DIMENSIONS ARE IN METERS
- 2 - ALL BRANCH BREAKERS ARE 10KA RATED INTERRUPTING CAPACITY
- 3 - DIVERSITY FACTOR CALCULATED : = 1
- 4 - ALL ELEVATIONS ARE REFEREED TO ABOVE FINISHED FLOOR LEVEL (A.F.F.L)
- 5 - ALL JUNCTION BOXES ARE NOT SHOWN BUT THEY ARE INSTALLED EVERY TWO BENDS
- 6- ALL CONDUITS USED FOR LIGHTING & SOCKET OUTLETS ARE PVC Ø 16MM, AND DEPENDING ON THE NUMBER OF LINES INSIDE CONDUITS FROM JUNCTION BOX TO EVERY INDIVIDUAL POINT.
- 7- INSTALLATION ELEVATIONS ABOVE F.F. ARE @1.40M FOR SWITCH, @2.00M FOR KWHM, @0.60M FOR SOCKET OUTLETS.
- 8- CABLE TYPE FOR THE WIRING TO BE USED SHALL BE NYY 0.6/1KV
- 9- SWITCHES WILL BE LEGRAND MOSAIC, DECOR/SUNO TYPE
- 10- ILLUMINATION LEVEL FOR EACH ROOM IS MAINTAINED AS PER ETHIOPIAN BUILDING STANDARD CODE EBCS-10.
11. WARNING TAPE TO BE USED FOR ALL UNDERGROUND CABLES.

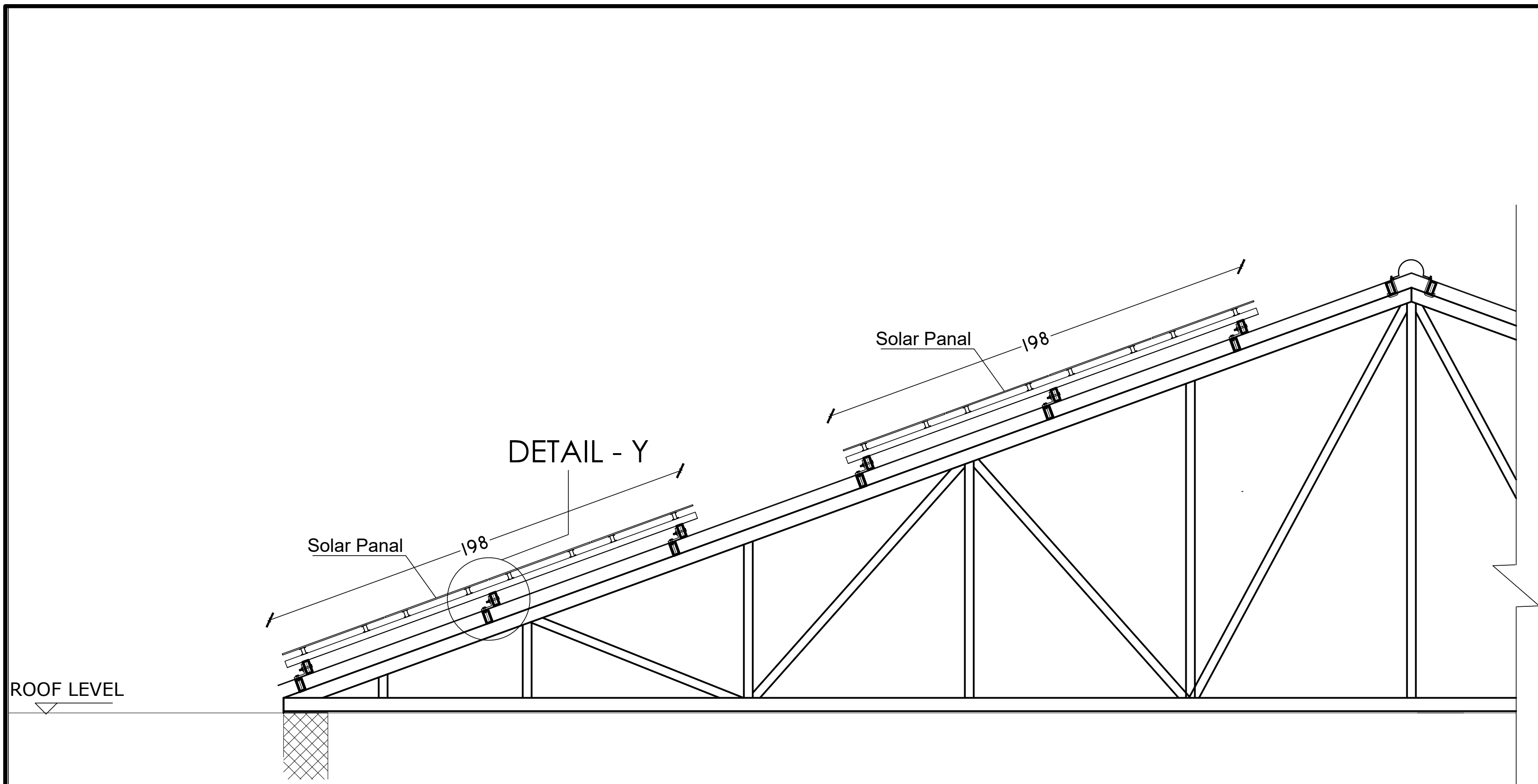
| | | | | |
|-------|-------|--------------|--|----------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 0 | | | | |
| Rev.: | Date: | Description: | | Approved |



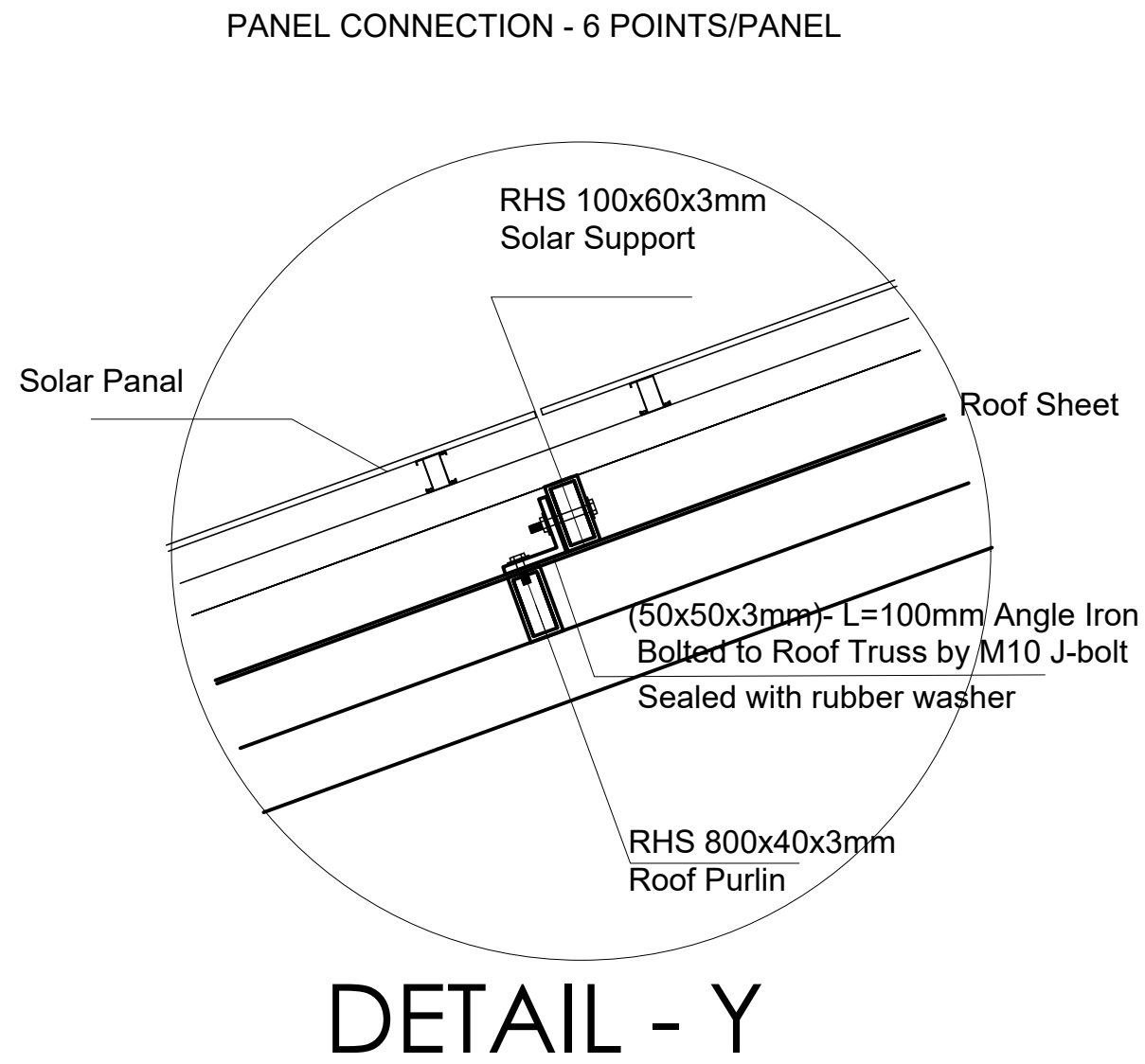
KEY PLAN

| | |
|---|--|
| All information in this document is the property of UNOPS and cannot be copied anywhere but in this project without prior written consent of UNOPS. | |
| Funded By: | Partner: |
| World Bank | FDRE- Ministry of Finance |
| Program: | Implemented By: |
| Response -Recovery-Resilience for conflict affected communities in Ethiopia | FDRE - Ministry of Finance UNOPS - ETMCO |
| Project Name: | Design: |
| SERENGA PRIMARY SCHOOL | UNOPS-ETMCO |
| | |

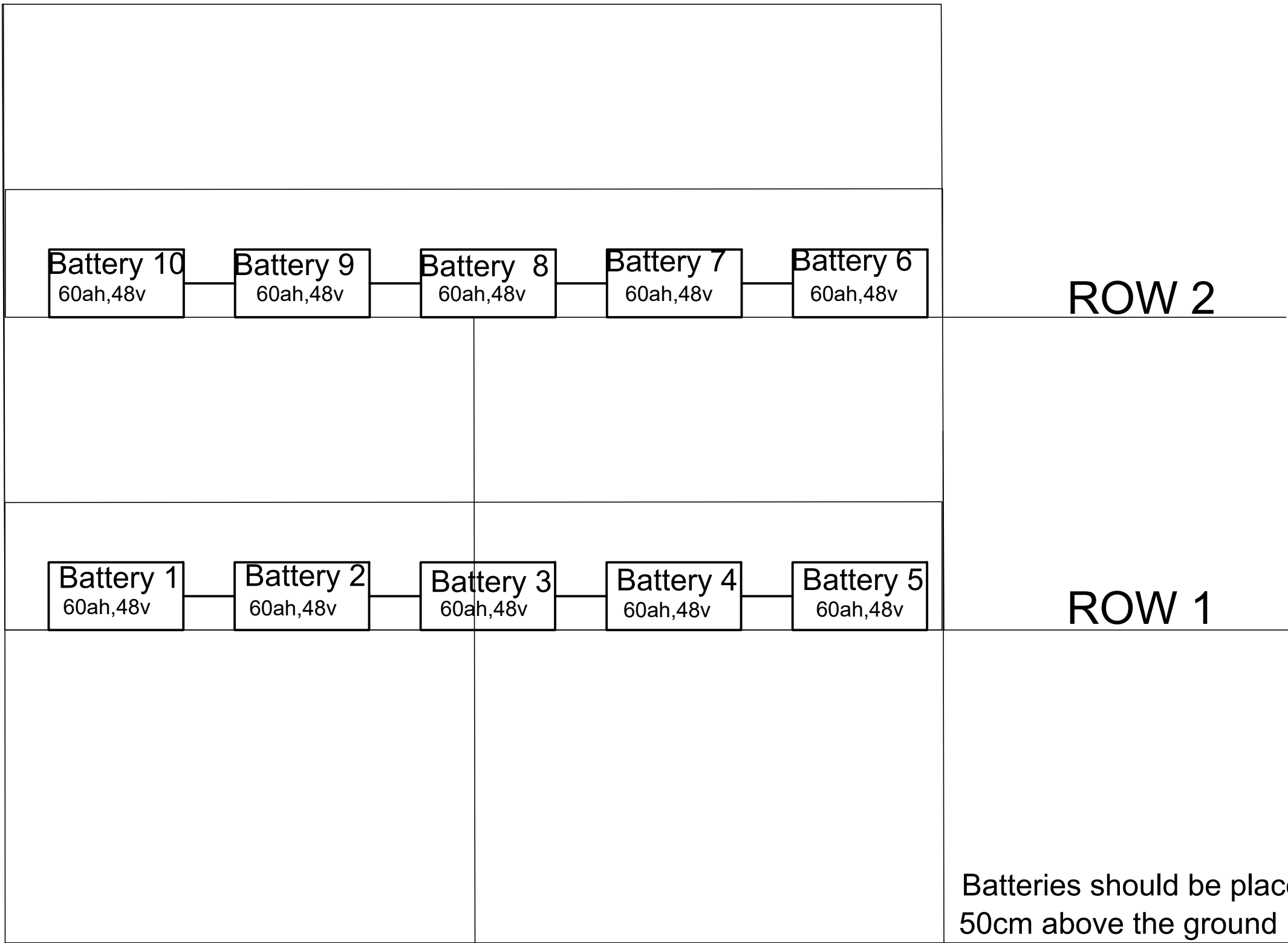
| | | | | |
|---|-------------|----------------|----------|---------|
| Drawing Title: | | | | |
| Lightening protection system detail layouts | | | | |
| Designed by | Discipline: | Dr. No: | Tot. No: | Rev No: |
| YG | EL | 05 | 09 | R0 |
| Drawn: | Checked: | Approved: | Size: | Scale: |
| LA | YG | | A1 | 1:100 |
| | | Date: | Rev.: | |
| | | 02 / 06 / 2023 | 0 | |



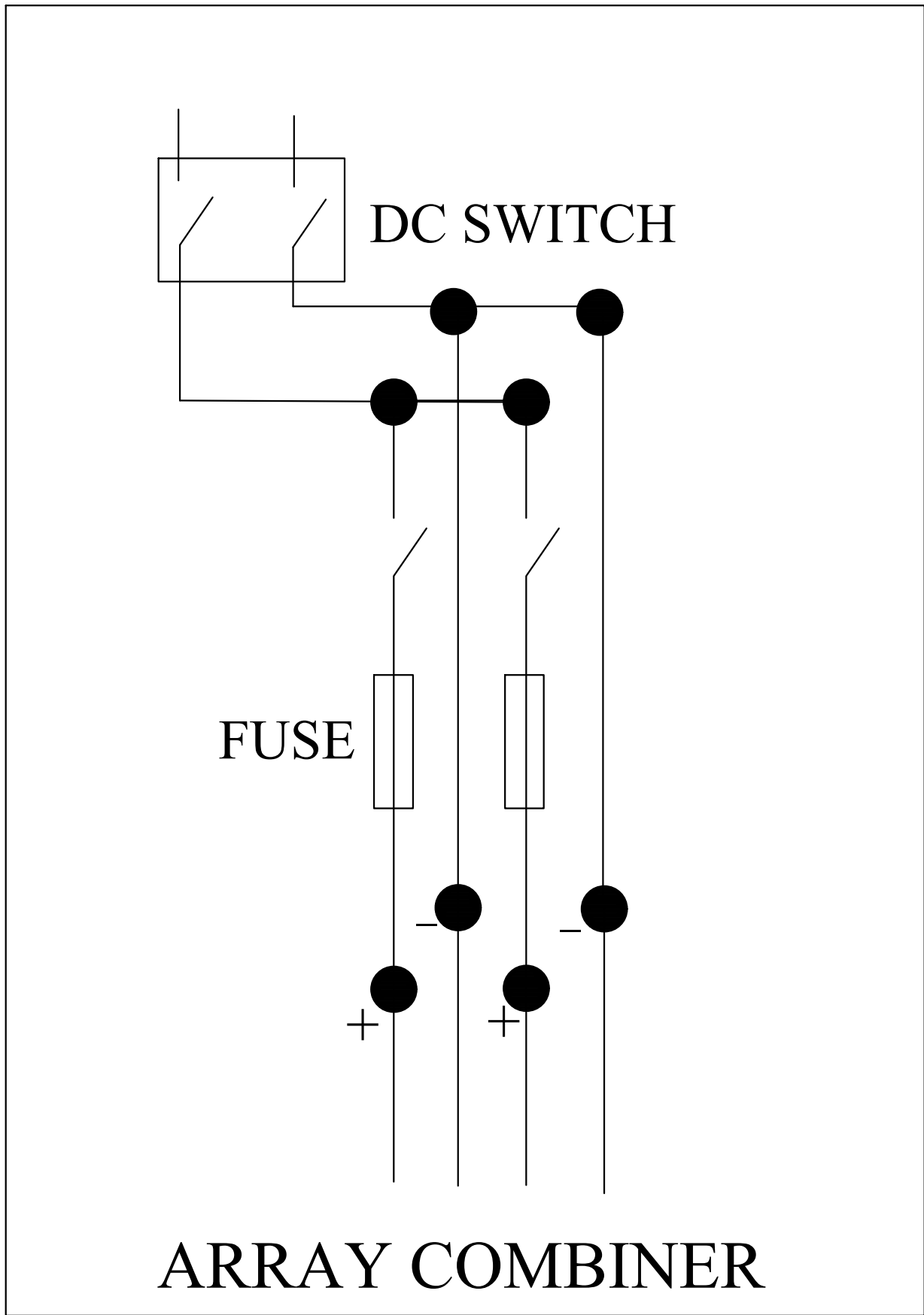
SECTIONAL DRAWING



- GENERAL NOTES:
- NOTE**
- 1 - ALL DIMENSIONS ARE IN METERS
 - 2 - ALL BRANCH BREAKERS ARE 10KA RATED INTERRUPTING CAPACITY
 - 3 - DIVERSITY FACTOR CALCULATED : = 1
 - 4 - ALL ELEVATIONS ARE REFERRED TO ABOVE FINISHED FLOOR LEVEL (A.F.F.L)
 - 5 - ALL JUNCTION BOXES ARE NOT SHOWN BUT THEY ARE INSTALLED EVERY TWO BENDS
 - 6- ALL CONDUITS USED FOR LIGHTING & SOCKET OUTLETS ARE PVC Ø 16MM, AND DEPENDING ON THE NUMBER OF LINES INSIDE CONDUITS FROM JUNCTION BOX TO EVERY INDIVIDUAL POINT.
 - 7- INSTALLATION ELEVATIONS ABOVE F.F. ARE @1.40M FOR SWITCH, @2.00M FOR KWHM, @0.60M FOR SOCKET OUTLETS.
 - 8- CABLE TYPE FOR THE WIRING TO BE USED SHALL BE NYY 0.6/1KV
 - 9- SWITCHES WILL BE LEGRAND MOSAIC, DECOR/SUNO TYPE
 - 10- ILLUMINATION LEVEL FOR EACH ROOM IS MAINTAINED AS PER ETHIOPIAN BUILDING STANDARD CODE EBCS-10.
 - 11- WARNING TAPE TO BE USED FOR ALL UNDERGROUND CABLES.



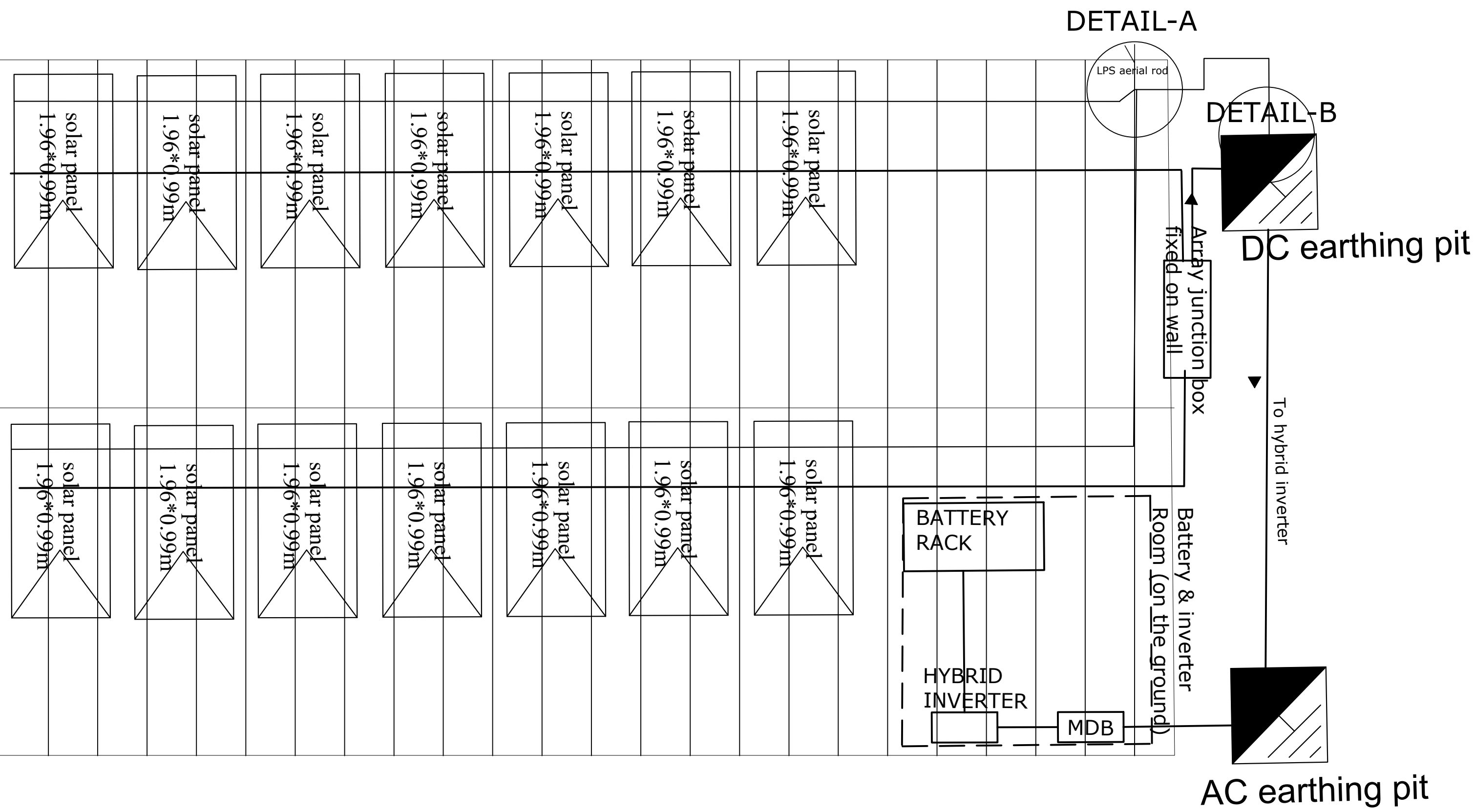
BATTERY BANK



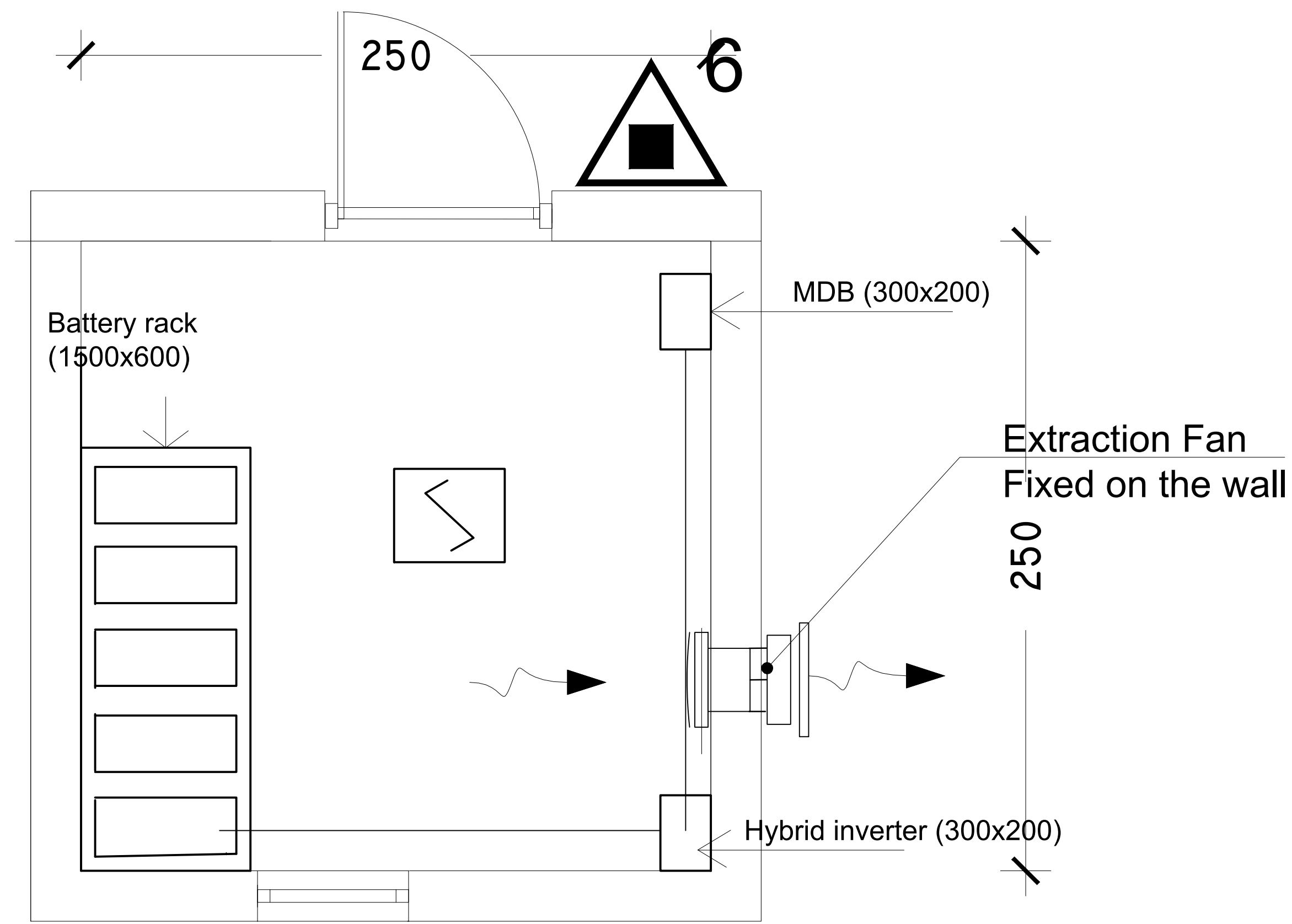
| | | | | |
|-------|-------|--------------|----------|--|
| | / | / | | |
| | / | / | | |
| | / | / | | |
| | / | / | | |
| | / | / | | |
| | / | / | | |
| | / | / | | |
| 0 | / | / | | |
| Rev.: | Date: | Description: | Approved | |

| | | | | |
|---|----------|---|---------|----------|
| KEY PLAN | | | | |
| All information in this document is the property of UNOPS and cannot be copied anywhere but in this project without prior written consent of UNOPS. | | | | |
| Funded By: | | Partner: | | |
| World Bank | | FDRE- Ministry of Finance | | |
| Program: | | Implemented By: | | |
| Response -Recovery-Resilience for conflict affected communities in Ethiopia | | FDRE - Ministry of Finance UNOPS - ETMCO | | |
| Project Name: | | Design: | | |
| SERENGA PRIMARY SCHOOL | | UNOPS-ETMCO | | |
| Drawing Title: | | D 15DF4E6C.png | | |
| SPV system detail layouts | | | | |
| Designed by | | Discipline: | Dr. No: | Tot. No: |
| YG | | EL | 06 | 09 |
| Rev No: | | R0 | | |
| Drawn: | Checked: | Approved: | Size: | Scale: |
| LA | YG | | A1 | 1:100 |
| Date: | | Rev.: | | |
| 02 / 06 / 2023 | | 0 | | |

B



SOLAR PANELS ARRANGEMENT ON ROOF



BATTERY ROOM LAYOUT

GENERAL NOTES:

NOTE

- 1 - ALL DIMENSIONS ARE IN METERS
- 2 - ALL BRANCH BREAKERS ARE 10KA RATED INTERRUPTING CAPACITY
- 3 - DIVERSITY FACTOR CALCULATED : = 1
- 4 - ALL ELEVATIONS ARE REFEREED TO ABOVE FINISHED FLOOR LEVEL (A.F.F.L)
- 5 - ALL JUNCTION BOXES ARE NOT SHOWN BUT THEY ARE INSTALLED EVERY TWO BENDS
- 6- ALL CONDUITS USED FOR LIGHTING & SOCKET OUTLETS ARE PVC Ø 16MM, AND DEPENDING ON THE NUMBER OF LINES INSIDE CONDUITS FROM JUNCTION BOX TO EVERY INDIVIDUAL POINT.
- 7- INSTALLATION ELEVATIONS ABOVE F.F. ARE @1.40M FOR SWITCH, @2.00M FOR KWHM, @0.60M FOR SOCKET OUTLETS.
- 8- CABLE TYPE FOR THE WIRING TO BE USED SHALL BE NYY 0.6/1KV
- 9- SWITCHES WILL BE LEGRAND MOSAIC, DECOR/SUNO TYPE
- 10- ILLUMINATION LEVEL FOR EACH ROOM IS MAINTAINED AS PER ETHIOPIAN BUILDING STANDARD CODE EBCS-10.
11. WARNING TAPE TO BE USED FOR ALL UNDERGROUND CABLES.

| | | | | |
|-------|-------|--------------|--|----------|
| / | / | / | | |
| / | / | / | | |
| / | / | / | | |
| / | / | / | | |
| / | / | / | | |
| / | / | / | | |
| / | / | / | | |
| 0 | / | / | | |
| Rev.: | Date: | Description: | | Approved |

KEY PLAN

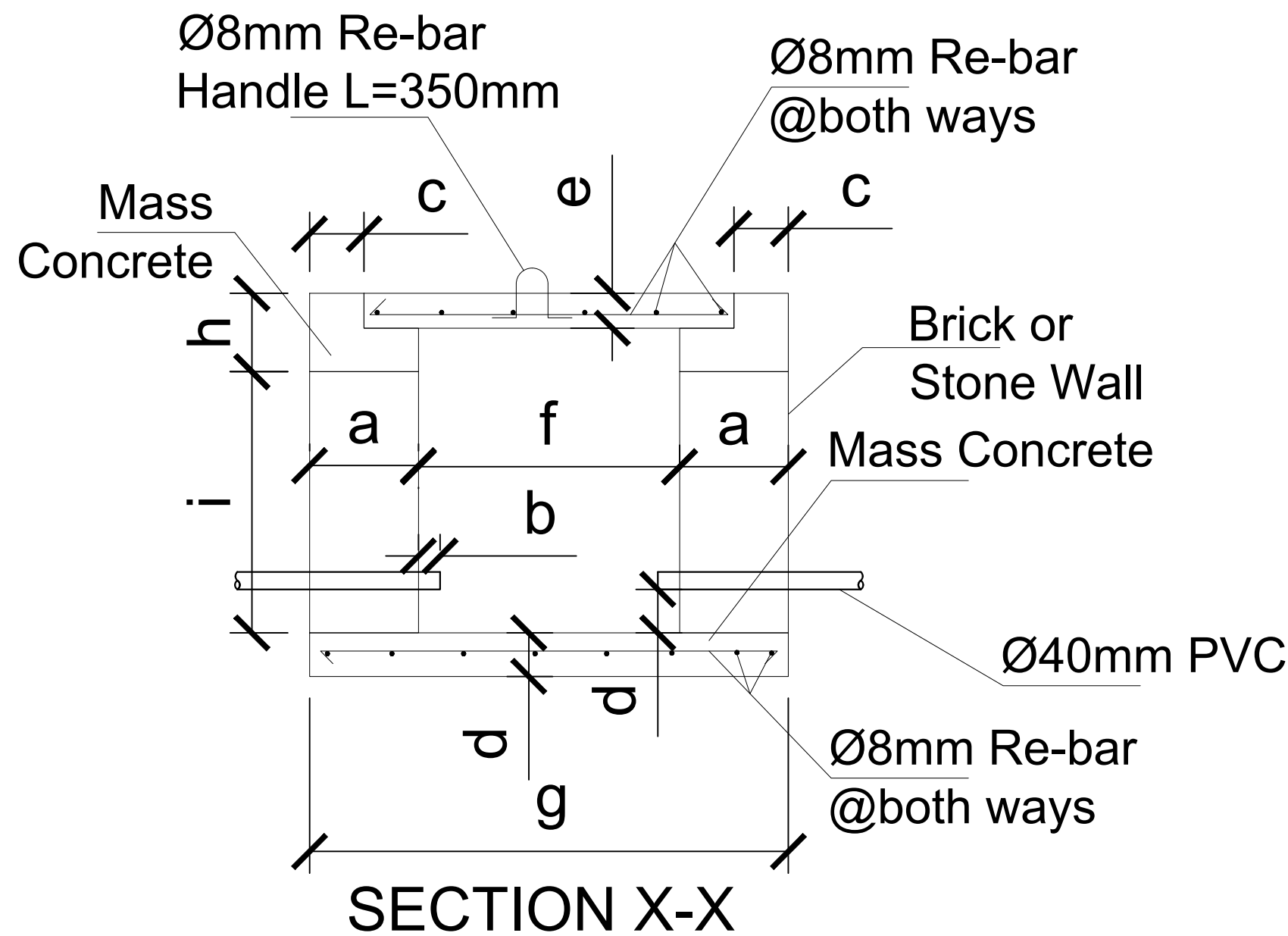
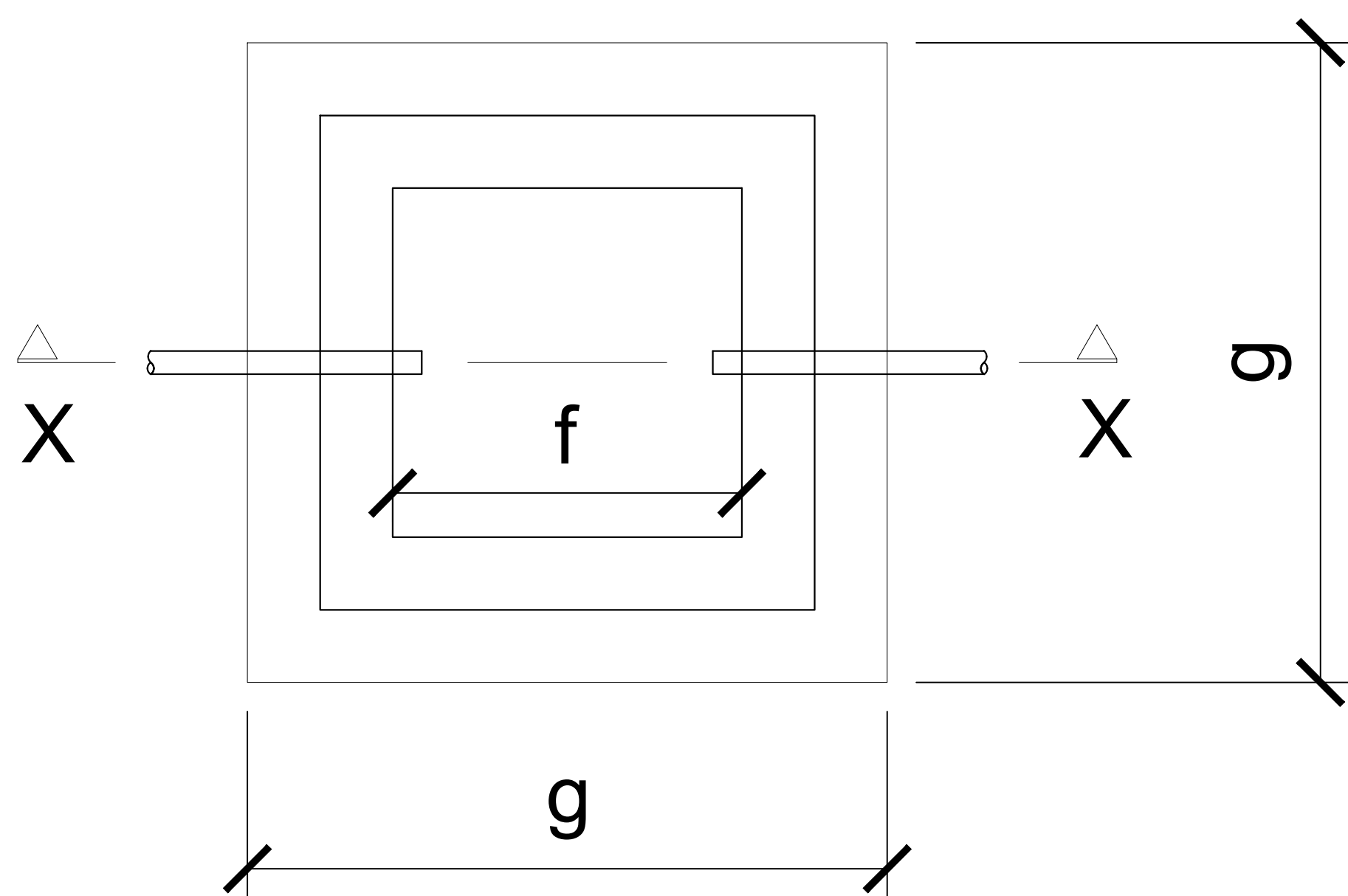
All information in this document is the property of UNOPS and cannot be copied anywhere but in this project without prior written consent of UNOPS.

| | |
|---|---|
| Funded By: | Partner: |
| World Bank | FDRE- Ministry of Finance |
| Program: | Implemented By: |
| Response -Recovery-Resilience for conflict affected communities in Ethiopia | FDRE - Ministry of Finance UNOPS - ETMCO |
| Project Name: | Design: |
| SERENGA PRIMARY SCHOOL | UNOPS-ETMCO |

Drawing Title:

Solar panel and battery room arrangement plan

| | | | | |
|-------------|-------------|-----------|----------|--------------|
| Designed by | Discipline: | Dr. No: | Tot. No: | Rev No: |
| YG | EL | 07 | 09 | R0 |
| Drawn: | Checked: | Approved: | Size: | Scale: |
| LA | YG | | A1 | 1:100 |
| | | | | 02 /06 /2023 |

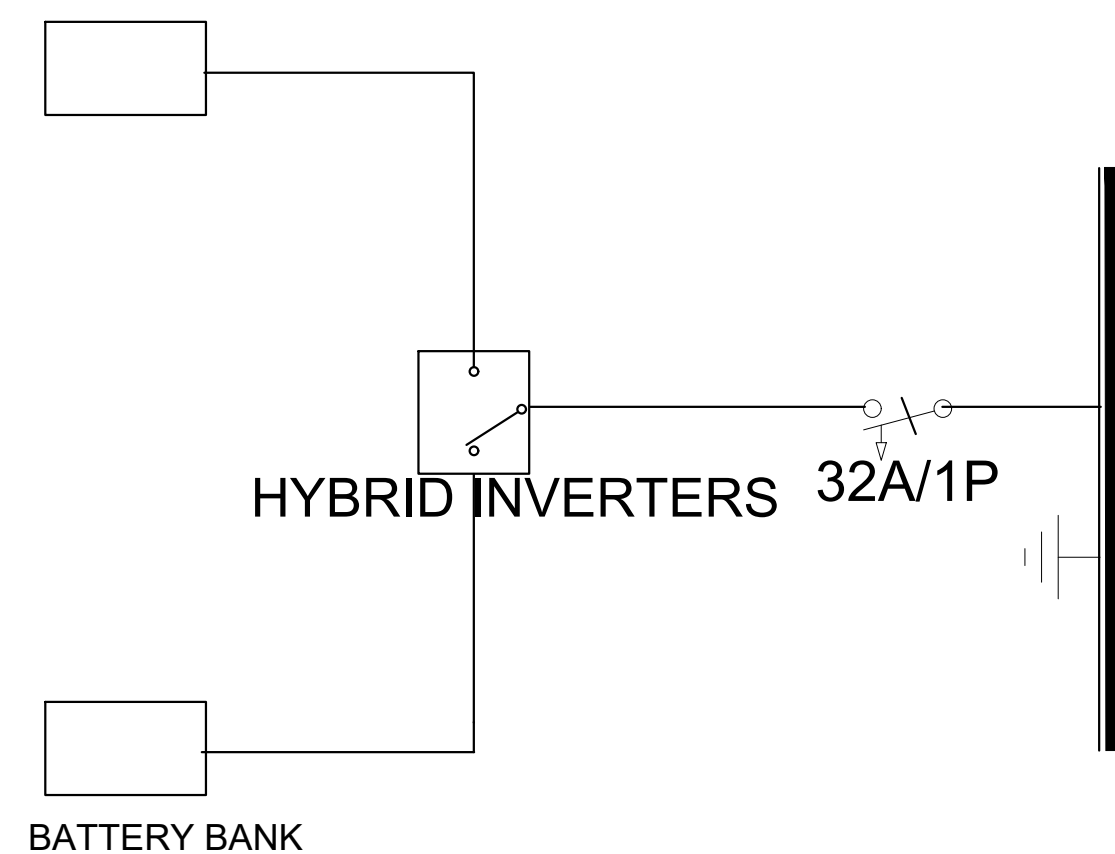


GENERAL NOTES:

NOTE

- 1 - ALL DIMENSIONS ARE IN METERS
- 2 - ALL BRANCH BREAKERS ARE 10KA RATED INTERRUPTING CAPACITY
- 3 - DIVERSITY FACTOR CALCULATED : = 1
- 4 - ALL ELEVATIONS ARE REFEREED TO ABOVE FINISHED FLOOR LEVEL (A.F.F.L)
- 5 - ALL JUNCTION BOXES ARE NOT SHOWN BUT THEY ARE INSTALLED EVERY TWO BENDS
- 6- ALL CONDUITS USED FOR LIGHTING & SOCKET OUTLETS ARE PVC Ø 16MM, AND DEPENDING ON THE NUMBER OF LINES INSIDE CONDUITS FROM JUNCTION BOX TO EVERY INDIVIDUAL POINT.
- 7- INSTALLATION ELEVATIONS ABOVE F.F. ARE @1.40M FOR SWITCH, @2.00M FOR KWHM, @0.60M FOR SOCKET OUTLETS.
- 8- CABLE TYPE FOR THE WIRING TO BE USED SHALL BE NYY 0.6/1KV
- 9- SWITCHES WILL BE LEGRAND MOSAIC, DECOR/SUNO TYPE
- 10- ILLUMINATION LEVEL FOR EACH ROOM IS MAINTAINED AS PER ETHIOPIAN BUILDING STANDARD CODE EBCS-10.
- 11.WARNING TAPE TO BE USED FOR ALL UNDERGROUND CABLES.

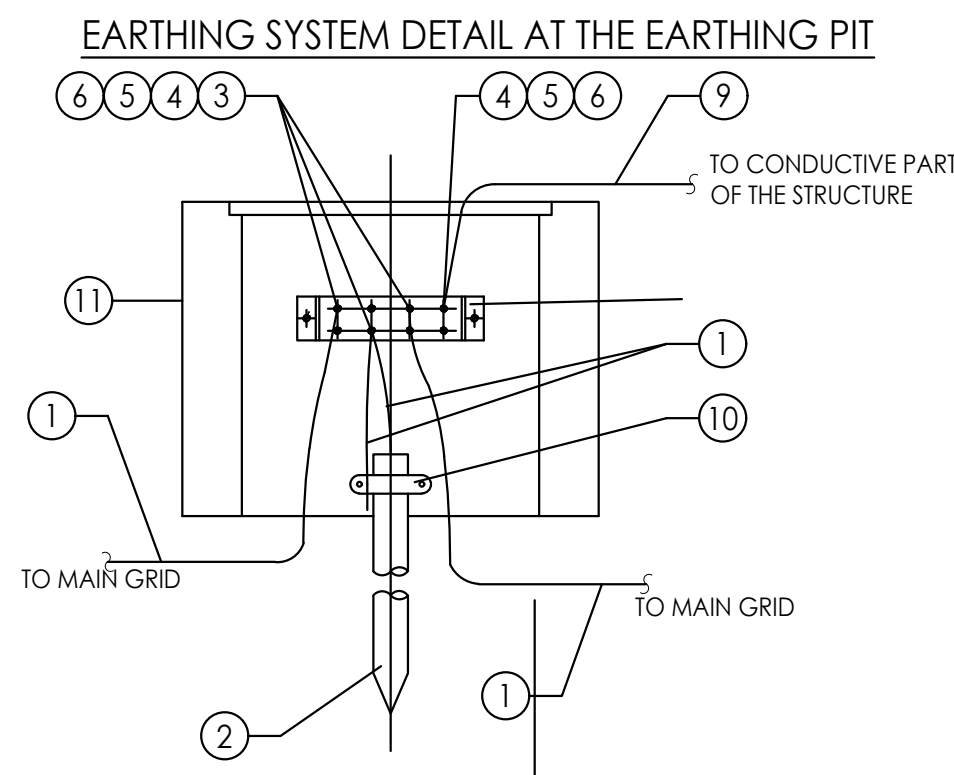
SOLAR PV MODULES



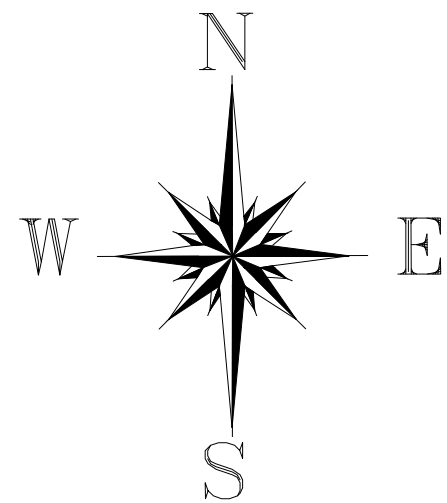
SOLAR POWER DISTRIBUTION BOARD SCHEDULE

| NO. | DESCRIPTION | P(KW) | A(mm ²) | I(A) | R | S | T |
|-----|-------------|-------|---------------------|------|---|---|---|
| 1 | SDB-CL1 | 1.1 | 3X4 | 20 | ● | | |
| 2 | SDB-CL2 | 1.1 | 3X4 | 20 | ● | | |
| 3 | WATER PUMP | 0.7 | 3X4 | 20 | ● | | |

| REF. | MANHOLE OF SIZE 600x600 | | MANHOLE OF SIZE 400x400 | |
|------|-------------------------|-------|-------------------------|-------|
| | STONE | BRICK | STONE | BRICK |
| a | 400 | 250 | 400 | 250 |
| b | 50 | 50 | 50 | 50 |
| c | 200 | 125 | 200 | 125 |
| d | 100 | 100 | 100 | 100 |
| e | 80 | 80 | 80 | 80 |
| f | 600 | 600 | 400 | 400 |
| g | 1400 | 1100 | 1200 | 900 |
| h | 180 | 180 | 180 | 180 |
| i | 700 | 700 | 500 | 500 |



| TYPE | DESCRIPTION |
|------|--|
| 1 | EARTH STRANDED COPPER CONDUCTOR = 1X16mmsq. |
| 2 | EARTH ELECTRODE - COPPER ROD 1600 x 16mm |
| 3 | COMPRESSION CABLE TERMINAL FOR ROPE IN Cu Ø14.7 (HOLE Ø13) |
| 4 | PIN STAINLESS STEEL M12X40 |
| 5 | FLAT WASHER IN STAINLESS STEEL Ø13 mm |
| 6 | DIE IN STAINLESS STEEL M12 |
| 7 | GROUND STRAP IN Cu DIM. 260 x 100 x 6mm |
| 8 | EXPANSION SMALL BLOCK M10 |
| 9 | FLAT IN Cu 30 x 3mm |
| 10 | CLAMP TERMINAL (EARTH ROD TO CONDUCTOR) |
| 11 | MANHOLE SIZE OF 400 x 400 x 500MM WITH CONCRETE COVER HAVING LIFTING LUG |



KEY PLAN

All information in this document is the property of UNOPS and cannot be copied anywhere but in this project without prior written consent of UNOPS.

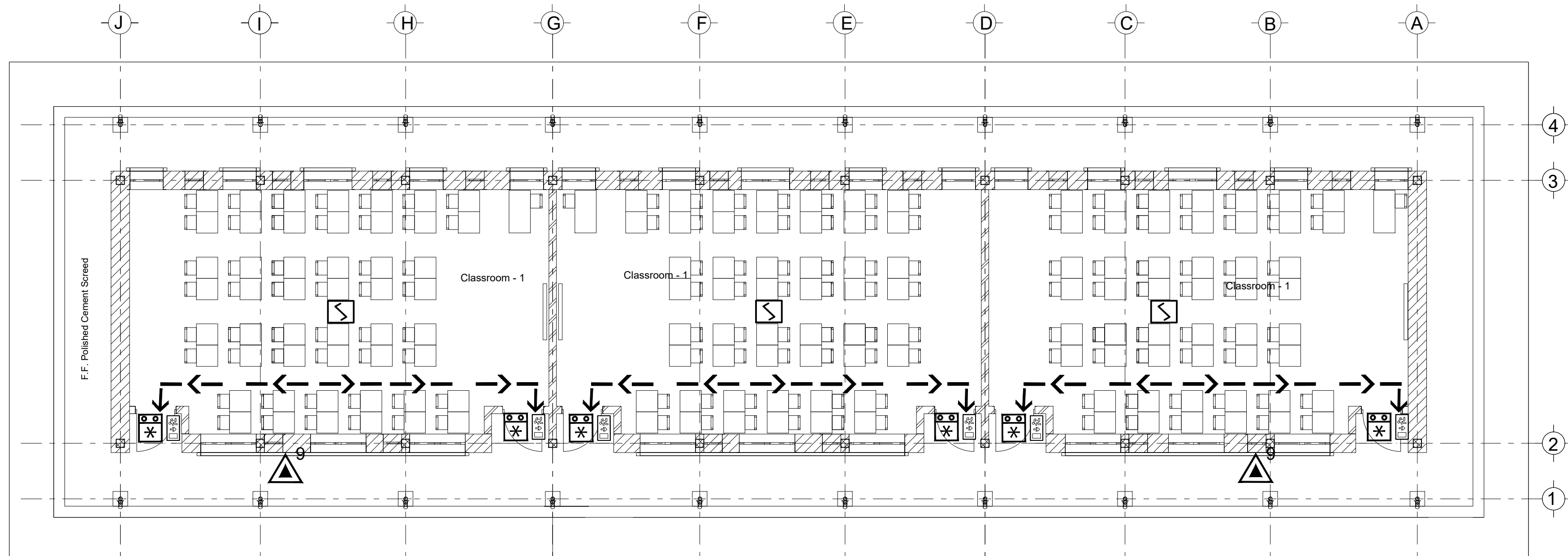
| | |
|---|--|
| Funded By: | Partner: |
| World Bank | FDRE- Ministry of Finance |
| Program: | Implemented By: |
| Response -Recovery-Resilience for conflict affected communities in Ethiopia | FDRE - Ministry of Finance UNOPS - ETMCO |
| Project Name: | Design: |
| SERENGA PRIMARY SCHOOL | UNOPS-ETMCO |



Drawing Title:

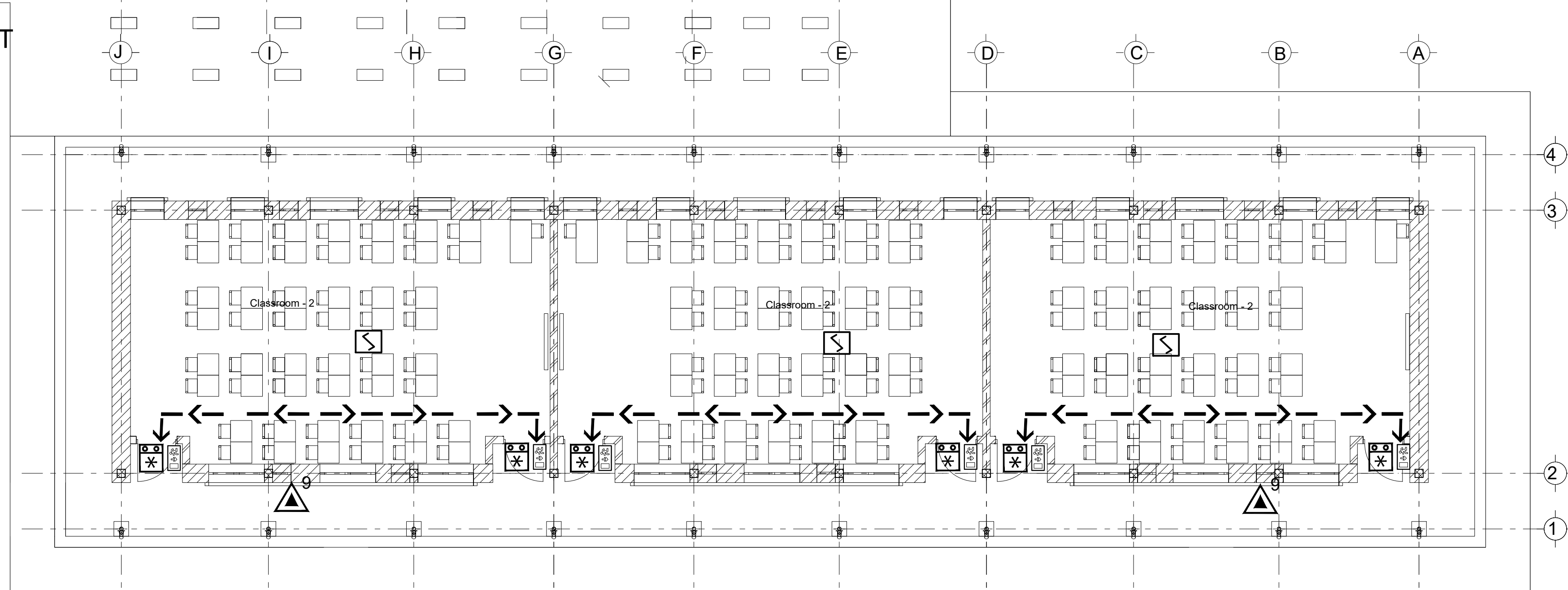
Manhole and earthing details

| | | | | |
|-------------|-------------|----------------|----------|---------|
| Designed by | Discipline: | Dr. No: | Tot. No: | Rev No: |
| YG | EL | 08 | 09 | R0 |
| Drawn: | Checked: | Approved: | Size: | Scale: |
| LA | YG | | A1 | 1:100 |
| | | Date: | Rev.: | |
| | | 02 / 06 / 2023 | 0 | |

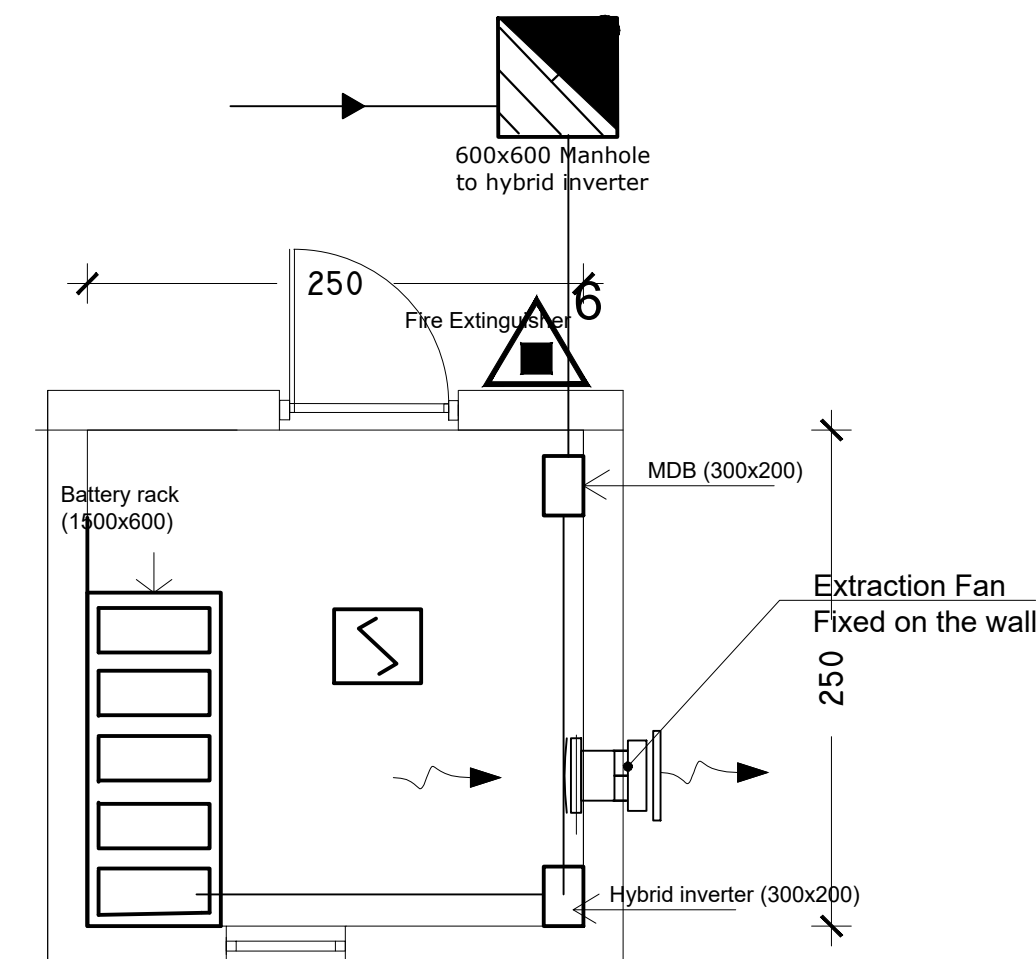


CLASS ROOM 1 LIGHTING & SOCKET LAYOUT

- LEGEND:
- EVACUATION ROUTES
- Non-Permanent and Automatic Safety Lighting
 - Normal Evacuation Route
 - Final Exit
 - Evacuation Itinerary (Right Exit)
 - Evacuation Itinerary (Left Exit)
- MEANS OF FIRST INTERVENTION / EXTINGUISHERS
- 6 Kg CO2 type fire Extinguisher
 - Portable water extinguisher (H2O), 9 Liters.
 - 50 l wheeled water fire extinguisher
 - Fire Blanket



FIRE FIGHTING AND EMERGENCY ESCAPE ROUTE LAYOUT



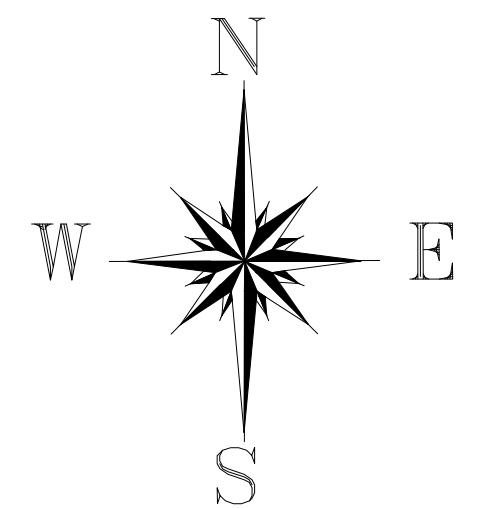
BATTERY ROOM FIRE ALARM AND FIRE FIGHTING LAYOUT

GENERAL NOTES:


NOTE

- 1 - ALL DIMENSIONS ARE IN METERS
- 2 - ALL BRANCH BREAKERS ARE 10KA RATED INTERRUPTING CAPACITY
- 3 - DIVERSITY FACTOR CALCULATED : = 1
- 4 - ALL ELEVATIONS ARE REFERRED TO ABOVE FINISHED FLOOR LEVEL (A.F.F.L)
- 5 - ALL JUNCTION BOXES ARE NOT SHOWN BUT THEY ARE INSTALLED EVERY TWO BENDS
- 6- ALL CONDUITS USED FOR LIGHTING & SOCKET OUTLETS ARE PVC Ø 16MM, AND DEPENDING ON THE NUMBER OF LINES INSIDE CONDUITS FROM JUNCTION BOX TO EVERY INDIVIDUAL POINT.
- 7- INSTALLATION ELEVATIONS ABOVE F.F. ARE @1.40M FOR SWITCH, @2.00M FOR KWHM, @0.60M FOR SOCKET OUTLETS.
- 8- CABLE TYPE FOR THE WIRING TO BE USED SHALL BE NYY 0.6/1KV
- 9- SWITCHES WILL BE LEGRAND MOSAIC, DECOR/SUNO TYPE
- 10- ILLUMINATION LEVEL FOR EACH ROOM IS MAINTAINED AS PER ETHIOPIAN BUILDING STANDARD CODE EBCS-10.
11. WARNING TAPE TO BE USED FOR ALL UNDERGROUND CABLES.

| | | | |
|------|-------|--------------|----------|
| Rev. | Date: | Description: | Approved |
| 0 | | | |



KEY PLAN

| | |
|---|---|
| All information in this document is the property of UNOPS and cannot be copied anywhere but in this project without prior written consent of UNOPS. | |
| Funded By: | Partner: |
| World Bank | FDRE- Ministry of Finance |
| Program: | Implemented By: |
| Response -Recovery-Resilience for conflict affected communities in Ethiopia | FDRE - Ministry of Finance UNOPS - ETMCO |
| Project Name: | Design: |
| SERENGA PRIMARY SCHOOL | UNOPS-ETMCO |
|  | |