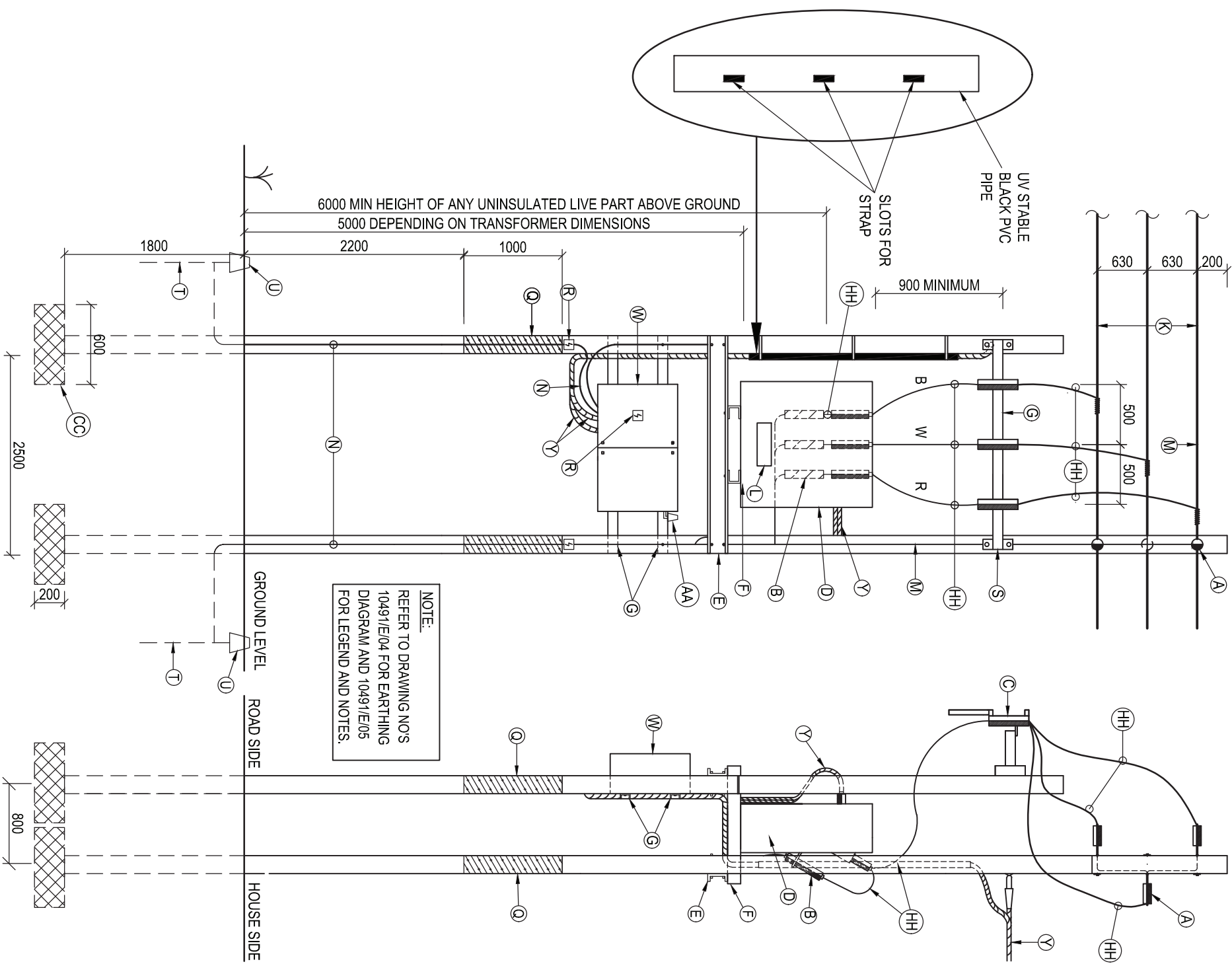
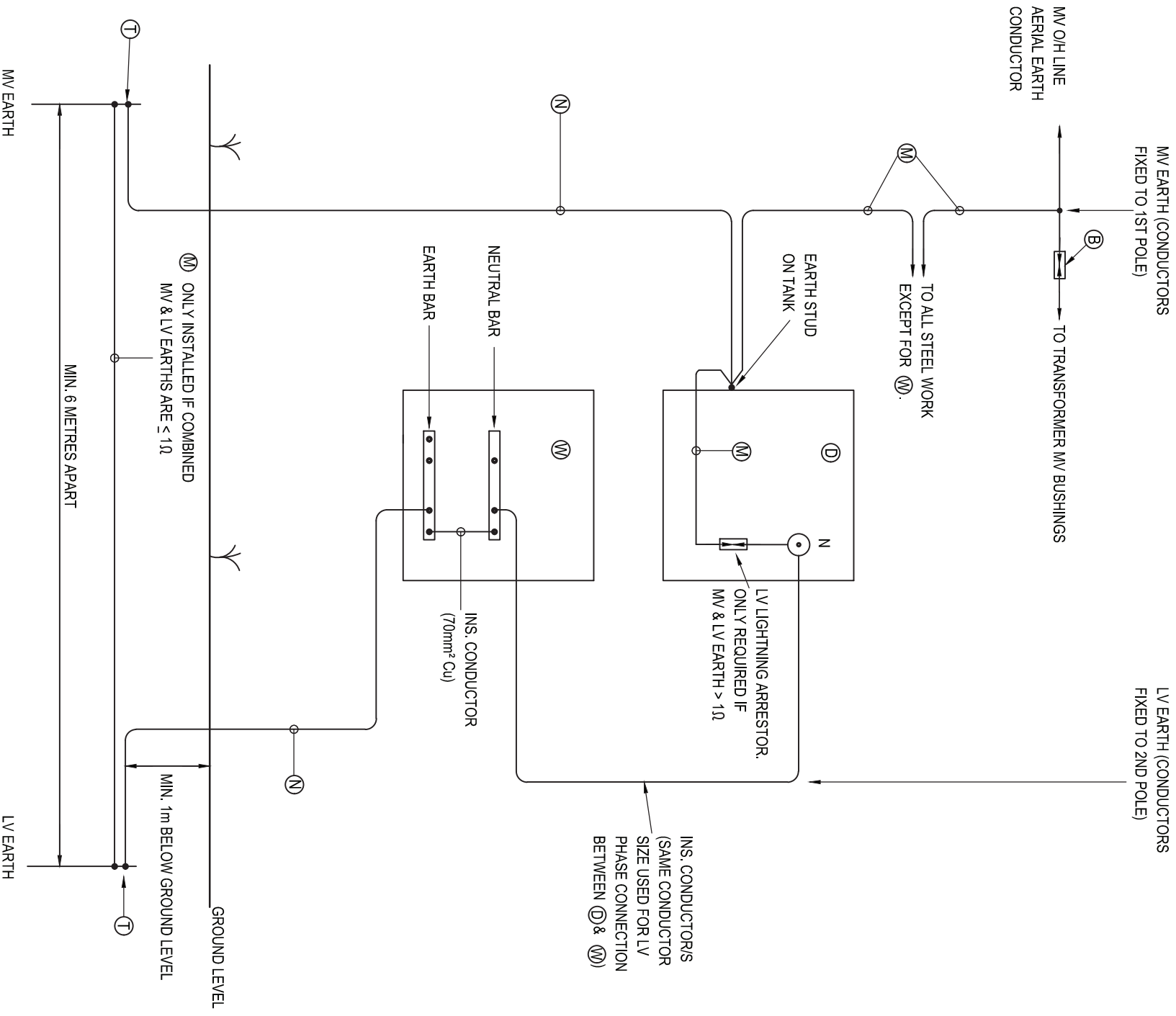






NOTE: REFER TO DRAWING NO. 10491/E/05 FOR LEGEND

LEGEND

- A

MV STRAIN INSULATOR
- B

MV LIGHTNING ARRESTOR
- C

MV EXPULSION FUSES
- D

MV TO 420V/240V POLE MOUNTED TRANSFORMER SUBSTATION
- E

200 x 75 x 25 GALVANISED CHANNEL IRON
- F

160 x 65 x 19 GALVANISED CHANNEL IRON
- G

100 x 50 x 6mm GALVANISED CHANNEL IRON
- H

50 x 12mm GALVANISED SLOT IRON
- J

100 x 50 x 11mm GALVANISED ANGLE IRON
- K

MV OVERHEAD LINE CONDUCTOR
- L

SUBSTATION DESIGNATION BOARD
- M

70mm² BARE HARD DRAWN CU EARTH CONDUCTOR
- N

70mm² CU BLACK PVC INSULATED EARTH CONDUCTOR
PROTECTED WITH 32mm DIAM. GALVANISED STEEL
KICKER PIPE FROM 500mm BELOW TO 3.5m ABOVE GROUND LEVEL.
- P

STRUT POLE
- Q

BARBED WIRE TWISTED AROUND POLES
- R

DANGER NOTICE
- S

100 x 50mm GALVANISED CHANNEL STAND-OFF BRACKET
FOR EXPULSION FUSES
- T

EARTH SPIKES
- U

CABLE MARKER LABELLED "EARTH SPIKE"
- W

LV DISTRIBUTION BOX
- Y

LV BUNDLED CONDUCTOR / LV PVCAS CABLE
- AA

PHOTO-CELL
- BB

MV UNDERGROUND CABLE
- CC

600 x 600 x 200mm CONCRETE FOOT
- DD

100 x 50 x 11 GALVANISED CHANNEL IRON
- EE

SINGLE/DOUBLE STRAIN A-FRAME
- HH

25mm² CU XLPE INSULATED CONNECTIONS WITH UV STABLE PVC OUTER SHEATH.
- JJ

MV UNDERGROUND CABLE
- NN

WOODEN SPACER FOR MV UNDERGROUND CABLE

NOTES:

- 1

MINIMUM CLEARANCE BETWEEN: 22kV PHASE AND EARTH - 320mm
 22kV PHASES - 430mm
 11kV PHASE AND EARTH - 200mm
 11kV PHASES - 270mm
- 2

INSTALL BUNDLED CONDUCTOR IN BLACK PVC SLEEVE WHERE IT IS
STRAPPED TO POLES AND WHERE IT IS IN CONTACT WITH STAY WIRE.
- 3

ALL BOLTS TO BE M20 & GALVANISED
- 4

REFER TO DRAWING NO'S 10491/E/03 & 04.

cmb

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PROJECT

BULK INFRASTRUCTURE WORK AND ELECTRIFICATION OF 200 HOUSES AT KRUISFONTEIN IN HUMANSDORP (DOE WORK 2020/21)

DRAWING TITLE

POLE MOUNTED TRANSFORMER LEGEND AND NOTES

DRAWN

MM

DESIGNED

GSA

CHECKED

GSA

APPROVED

SCALE

N.T.S.

DATE

05/06/2020

CAD REF. NO.

10491-E-DET

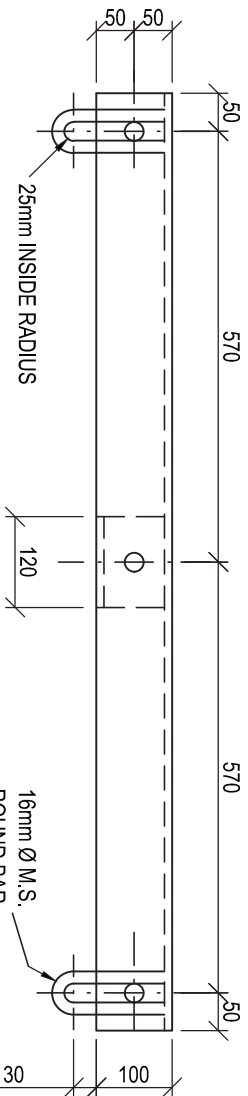
DWG-SIZE

A4

DRAWING NO

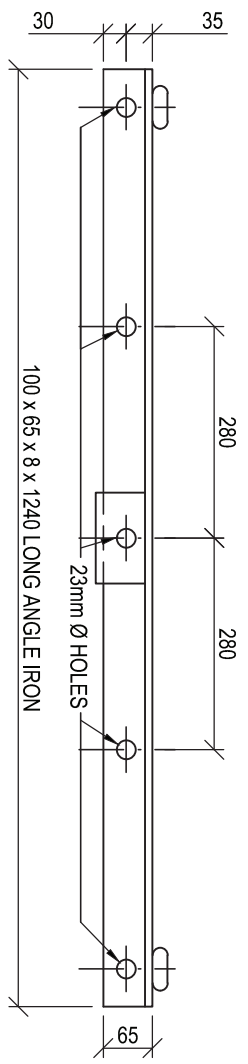
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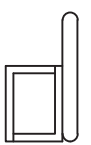


PLAN

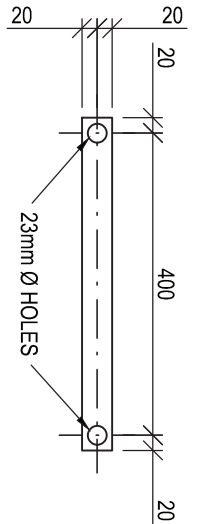
ALL HOLES 25mm Ø
UNLESS OTHERWISE SHOWN



FRONT ELEVATION



END ELEVATION



KNEE-BRACE FOR ANGLE CROSS-ARM

NOTE: STEELWORK TO BE HOT DIP GALVANISED AFTER MANUFACTURE

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BULK INFRASTRUCTURE WORK AND ELECTRIFICATION OF 200 HOUSES AT KRUISFONTEIN IN HUMANSDORP (DOE WORK 2020/21)

DRAWING TITLE
11/22KV O/H LINE: CROSS-ARM FOR USE WITH 'A' FRAME AT TEE-OFFS AND RIGHT ANGLE TURNS

DRAWN
MM

DESIGNED
GSA

CHECKED
GSA

APPROVED

SCALE
N.T.S.

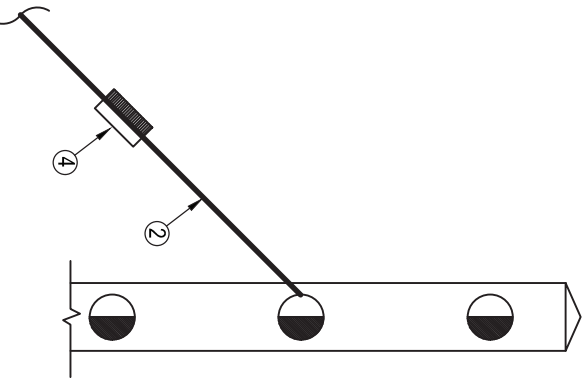
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05/06/2020

CAD REF. NO.
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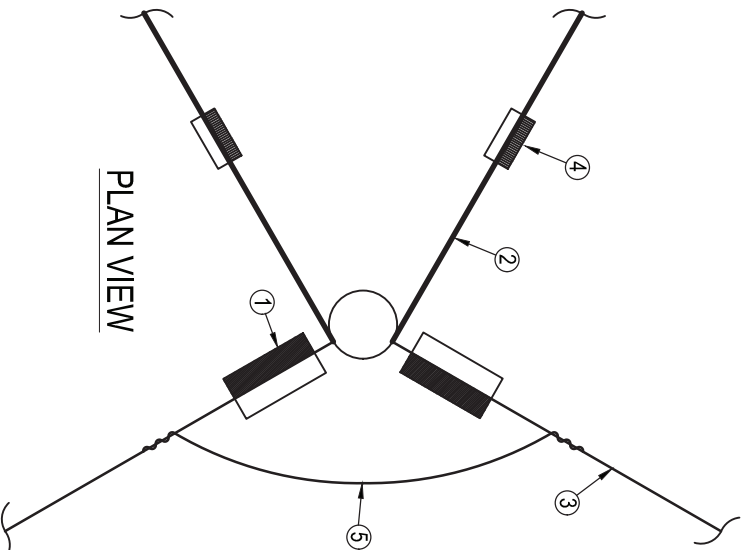
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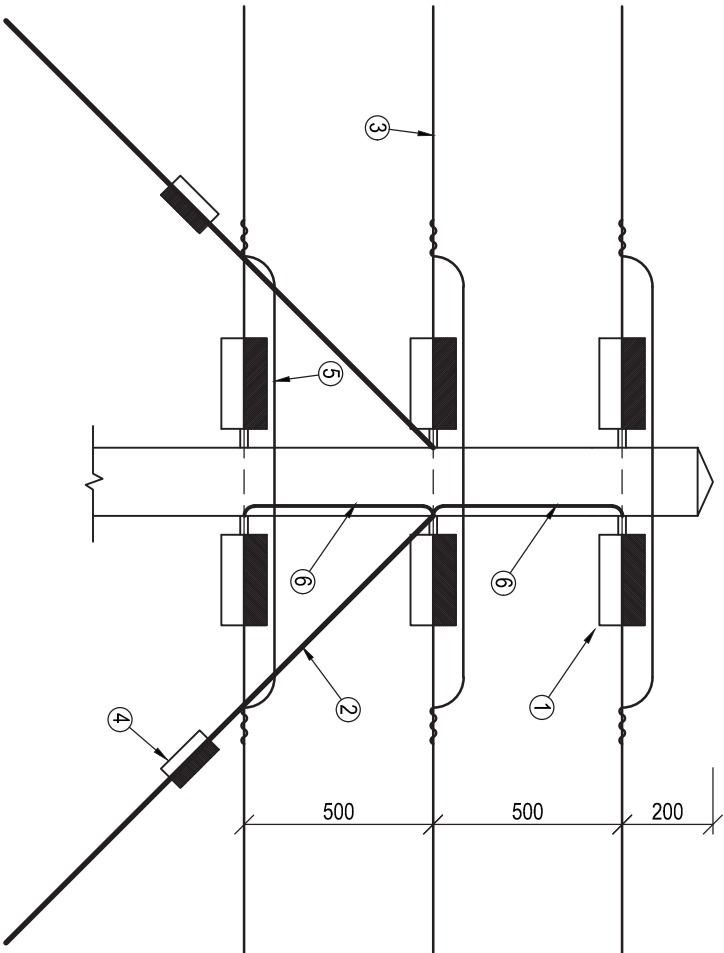
REVISION



SIDE ELEVATION



PLAN VIEW



FRONT ELEVATION

LEGEND

- ① STRAIN INSULATORS
SEE DETAILED SPEC.
- ② STAY WIRE
- ③ OVERHEAD LINE
CONDUCTOR
- ④ STAY INSULATOR
- ⑤ JUMPER
- ⑥ 16mm² (3/2,65mm) HD BARE Cu
CONDUCTOR BONDING HARDWARE

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**BULK INFRASTRUCTURE WORK AND
ELECTRIFICATION OF 200 HOUSES AT
KRUISFONTEIN IN HUMANSDORP (DOE
WORK 2020/21)**

DRAWING TITLE
**22kV STRAIN STRUCTURE FOR
VERTICAL CONSTRUCTION**

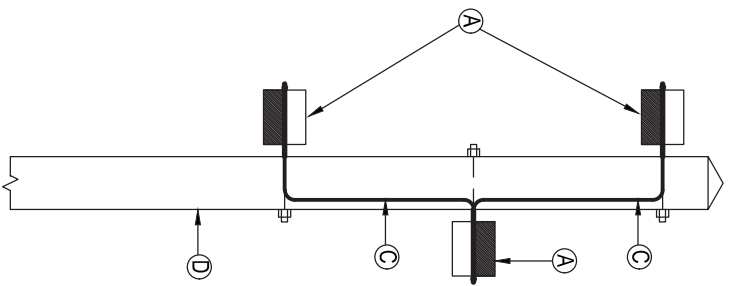
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N.T.S.	05/06/2020	10491-E-DET	A4

DRAWING NO

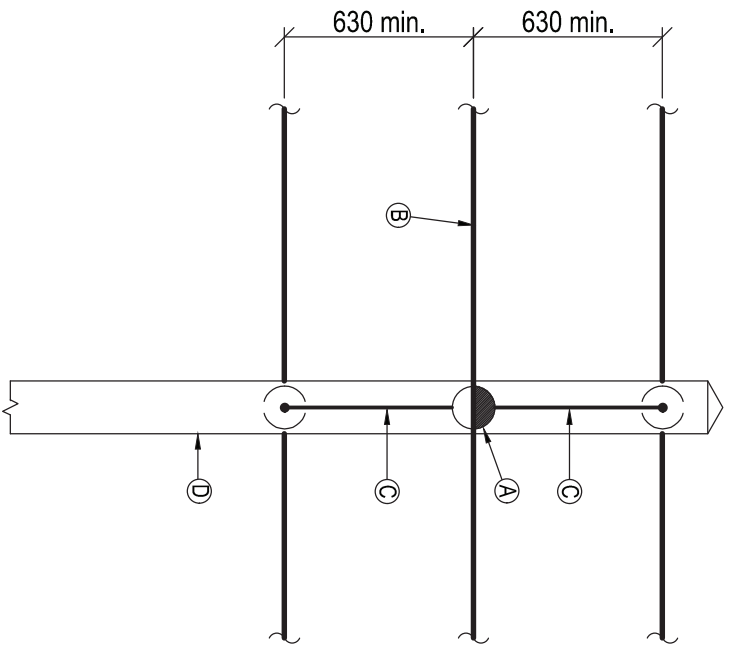
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REVISION

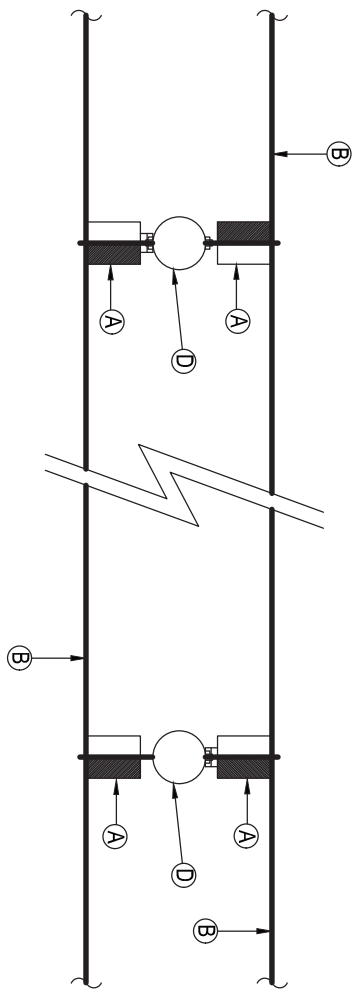
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SIDE ELEVATION



FRONT ELEVATION



LEGEND

- (A) 22kV LINE POST INSULATOR
- (B) 22kV O/H LINE CONDUCTOR
- (C) 16mm² (3/2,65mm) HD BARE Cu CONDUCTOR
- (D) BONDING HARDWARE
- (E) POLE



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BULK INFRASTRUCTURE WORK AND ELECTRIFICATION OF 200 HOUSES AT KRUISFONTEIN IN HUMANSDORP (DOE WORK 2020/21)

DRAWING TITLE

22kV INTERMEDIATE STRUCTURE FOR VERTICAL CONSTRUCTION

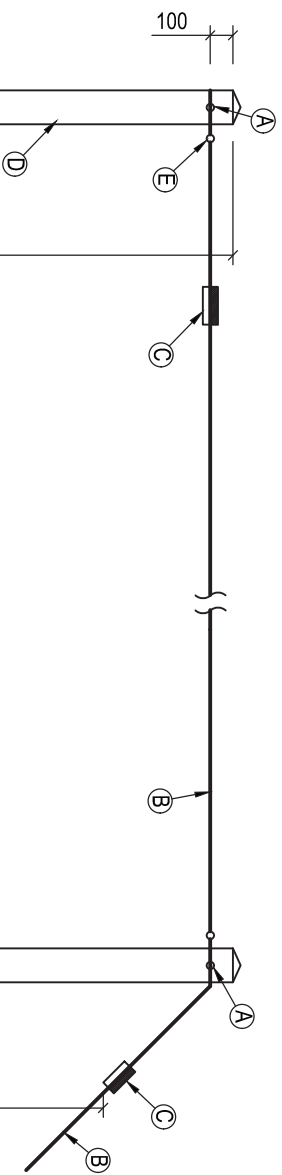
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10491/E/09

REVISION

DRAWN	DESIGNED	CHECKED	APPROVED
MM	GSA	GSA	
SCALE	DATE	CAD REF NO.	DWG-SIZE
N.T.S.	05/06/2020	10491-E-DET	A4

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DIMENSIONS (MILLIMETRES)	
A (POLE LENGTH)	B
8 000	1 500
9 000	1 500
10 000	1 800
11 000	1 800
12 000	1 900
13 000	2 000

GROUND/ROAD LEVEL

B

A

B

- LEGEND**
- A 20mm Ø GALVANISED STEEL ROD
 - B STAY WIRE
 - C STAY INSULATOR
 - D STRAIN POLE
 - E EYE BOLT



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BULK INFRASTRUCTURE WORK AND ELECTRIFICATION OF 200 HOUSES AT KRUISFONTEIN IN HUMANSDORP (DOE WORK 2020/21)

DRAWING TITLE

MV / LV OH LINE:
FLYING STAY STRUCTURE

DRAWN

MM

DESIGNED

GSA

CHECKED

GSA

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SCALE

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DATE

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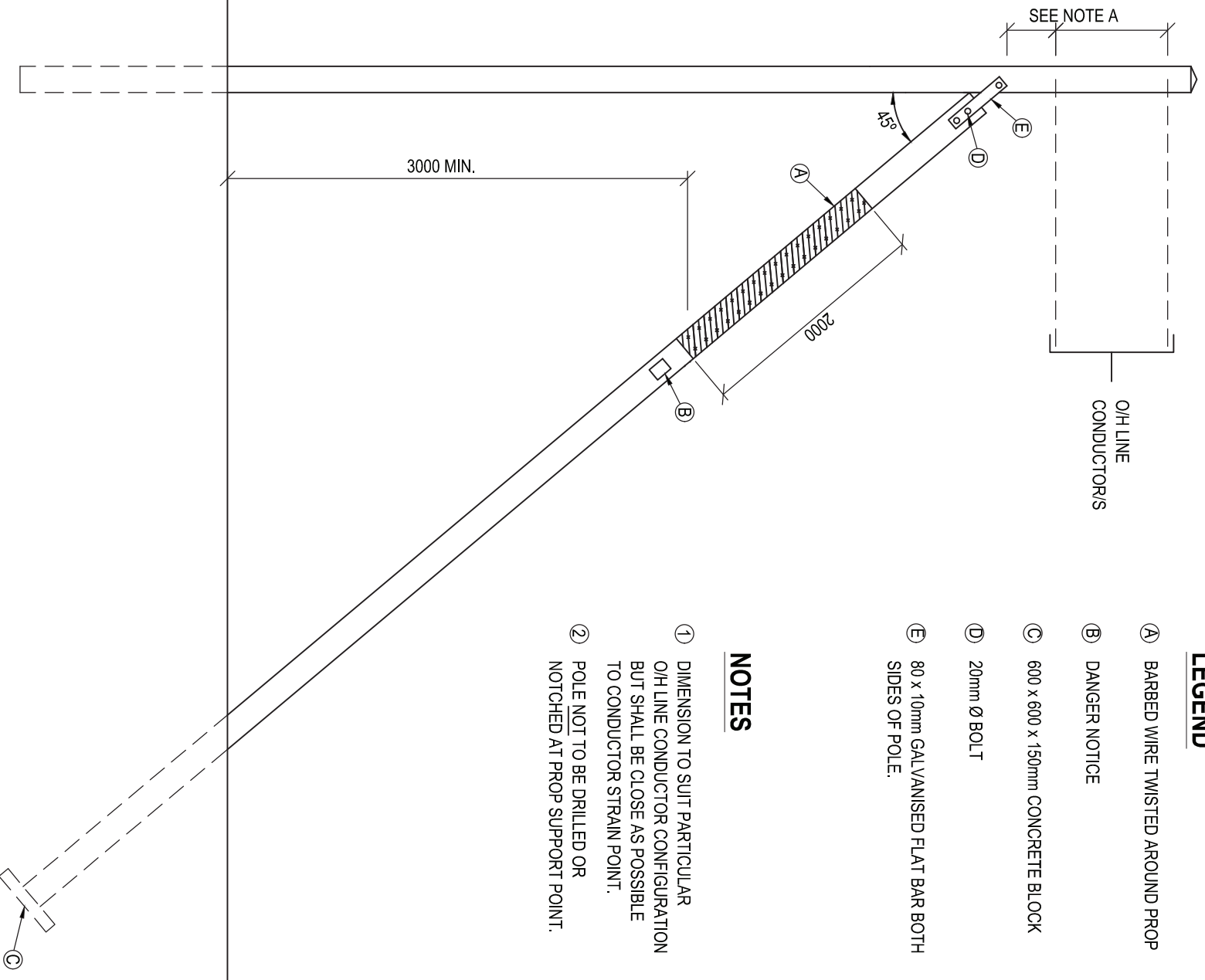
DWG-SIZE

A4

DRAWING NO

10491/E/11

REVISION



LEGEND

- Ⓐ BARBED WIRE TWISTED AROUND PROP
- Ⓑ DANGER NOTICE
- Ⓒ 600 x 600 x 150mm CONCRETE BLOCK
- Ⓓ 20mm Ø BOLT
- Ⓔ 80 x 10mm GALVANISED FLAT BAR BOTH SIDES OF POLE.

NOTES

- ① DIMENSION TO SUIT PARTICULAR
O/H LINE CONDUCTOR CONFIGURATION
BUT SHALL BE CLOSE AS POSSIBLE
TO CONDUCTOR STRAIN POINT.
- ② POLE NOT TO BE DRILLED OR
NOTCHED AT PROP SUPPORT POINT.

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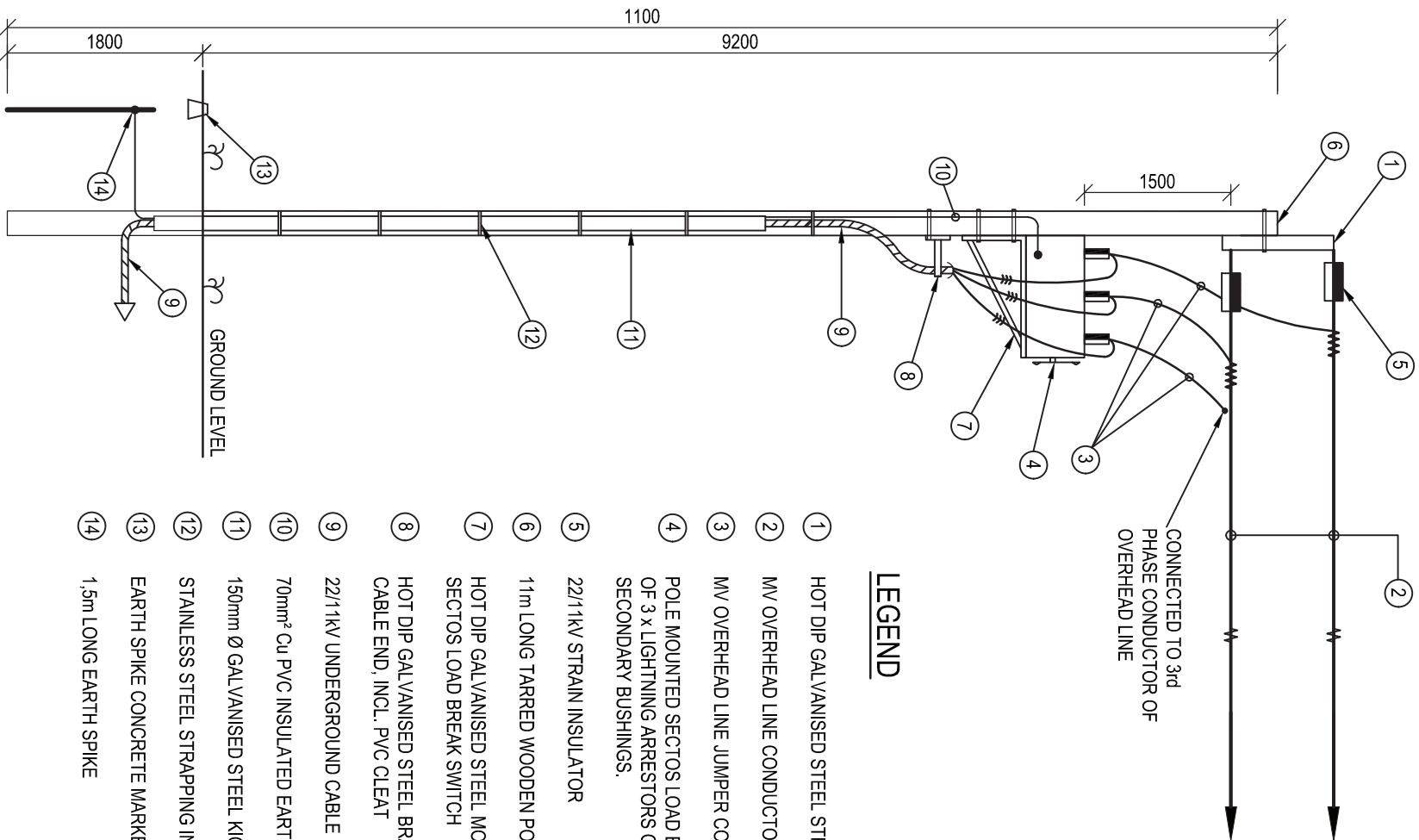
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DRAWING TITLE
MV / LV O/H LINE:
PROP STRUCTURE

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	MM	GSA	GSA	
10491/E/12	SCALE	DATE	CAD REF NO	DWG SIZE
	N.T.S.	05/06/2020	10491-E-DET	A4
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LEGEND

- 1 HOT DIP GALVANISED STEEL STRAIN A-FRAME
- 2 MV OVERHEAD LINE CONDUCTOR
- 3 MV OVERHEAD LINE JUMPER CONDUCTORS
- 4 POLE MOUNTED SECTOS LOAD BREAK SWITCH INCL. SET OF 3 x LIGHTNING ARRESTORS ON BOTH PRIMARY AND SECONDARY BUSHINGS.
- 5 22/11kV STRAIN INSULATOR
- 6 11m LONG TARRERD WOODEN POLE
- 7 HOT DIP GALVANISED STEEL MOUNTING BRACKET FOR SECTOS LOAD BREAK SWITCH
- 8 HOT DIP GALVANISED STEEL BRACKET TO SUPPORT CABLE END, INCL. PVC CLEAT
- 9 22/11kV UNDERGROUND CABLE
- 10 70mm² Cu PVC INSULATED EARTH WIRE (COLOUR BLACK)
- 11 150mm Ø GALVANISED STEEL KICKER PIPE, 6m LONG
- 12 STAINLESS STEEL STRAPPING IN 1m INTERVALS
- 13 EARTH SPIKE CONCRETE MARKER
- 14 1,5m LONG EARTH SPIKE

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**BULK INFRASTRUCTURE WORK AND
ELECTRIFICATION OF 200 HOUSES AT
KRUISFONTEIN IN HUMANSDORP (DOE
WORK 2020/21)**

DRAWING TITLE
**TYPICAL MOUNTING DETAIL OF SECTOS
POLE MOUNTED LOAD BREAK SWITCH**

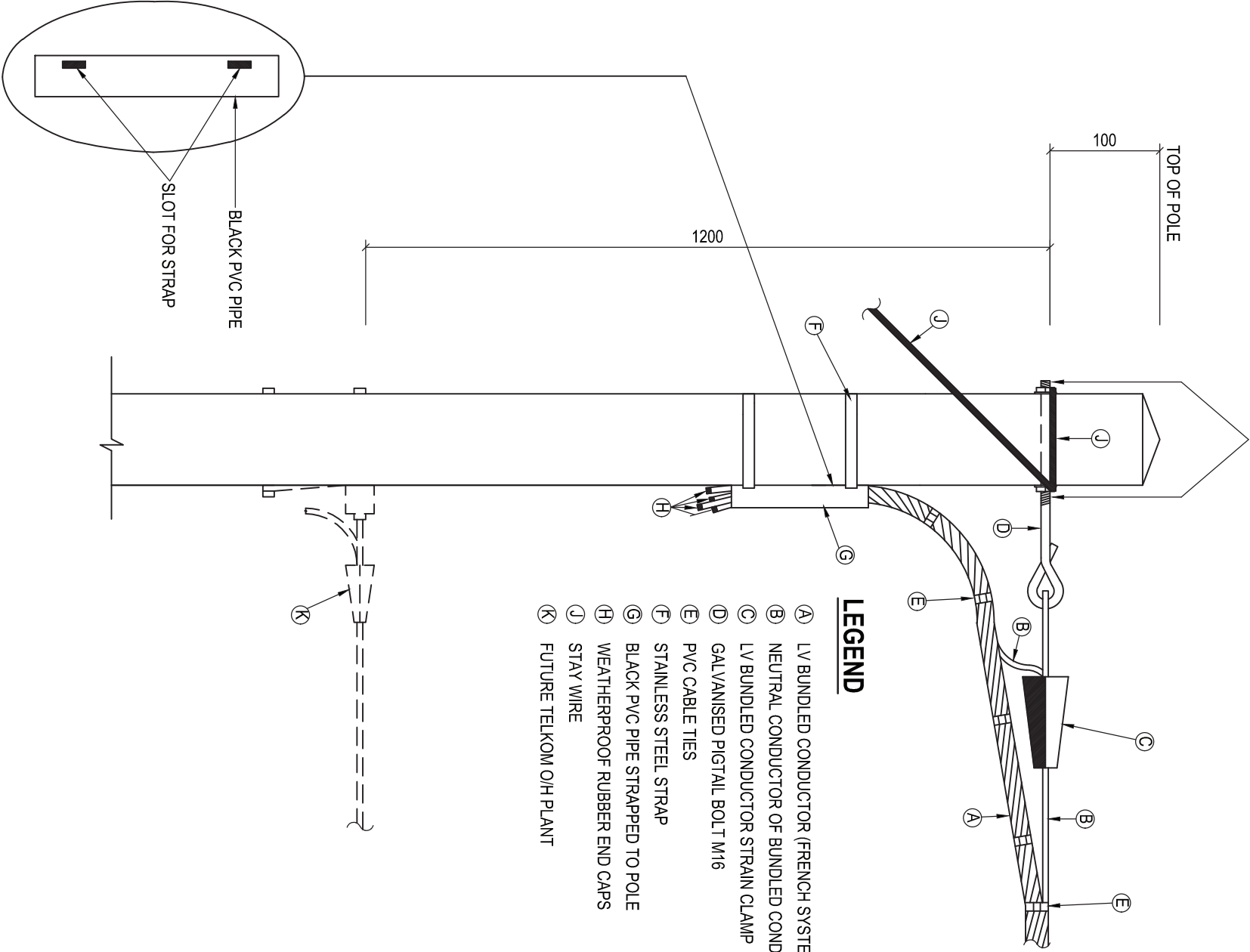
DENSAL PASTE
THREAD OF PIGTAIL BOLT

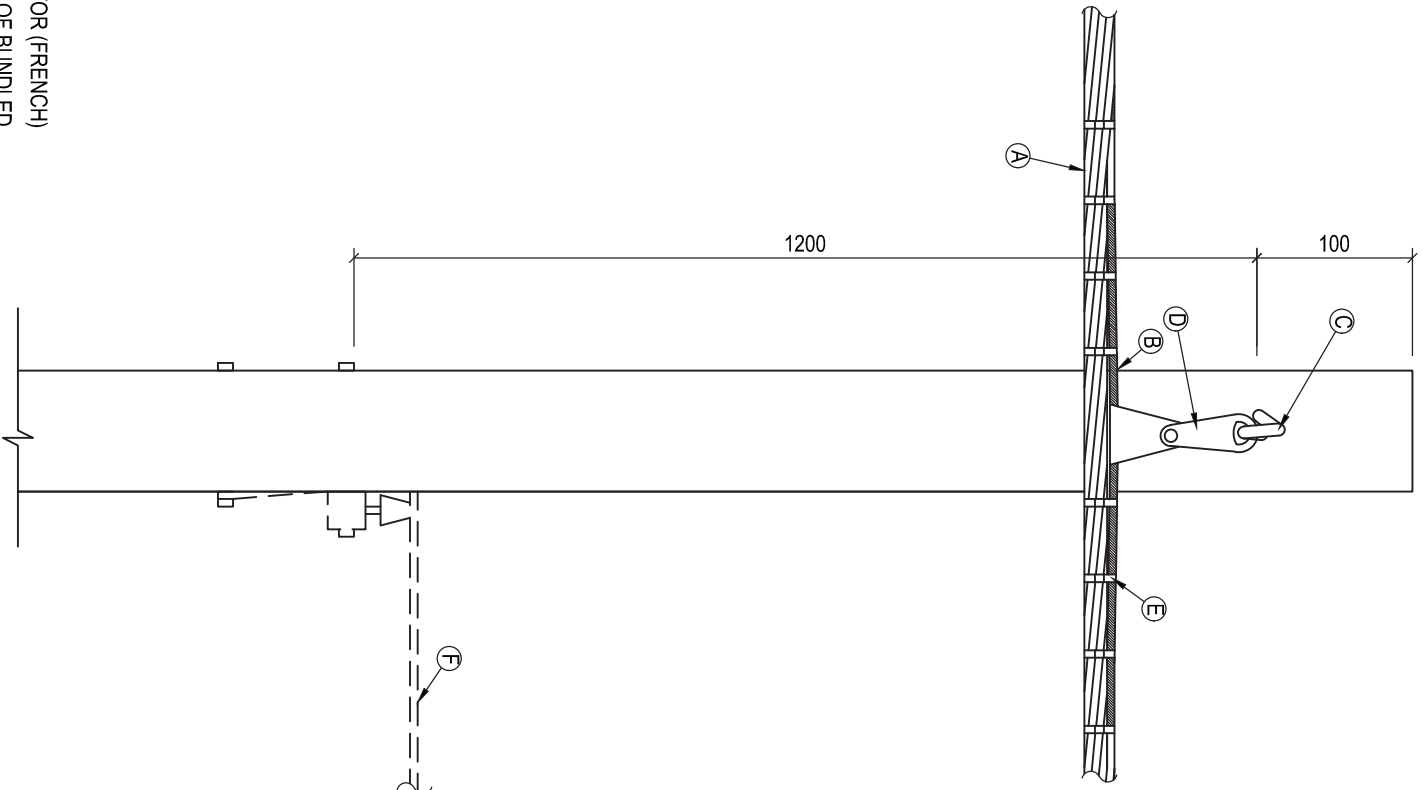
TOP OF POLE

100

1200

- LEGEND**
- (A) LV BUNDLED CONDUCTOR (FRENCH SYSTEM)
 - (B) NEUTRAL CONDUCTOR OF BUNDLED CONDUCTOR
 - (C) LV BUNDLED CONDUCTOR STRAIN CLAMP
 - (D) GALVANISED PIGTAIL BOLT M16
 - (E) PVC CABLE TIES
 - (F) STAINLESS STEEL STRAP
 - (G) BLACK PVC PIPE STRAPPED TO POLE
 - (H) WEATHERPROOF RUBBER END CAPS
 - (J) STAY WIRE
 - (K) FUTURE TELKOM O/H PLANT





LEGEND

- A** LV BUNDLED CONDUCTOR (FRENCH)
- B** NEUTRAL CONDUCTOR OF BUNDLED CONDUCTOR
- C** PIGTAIL BOLT
- D** BUNDLED CONDUCTOR INTERMEDIATE SUSPENSION CLAMP
- E** PVC CABLE TIES
- F** POSSIBLE FUTURE TELKOM O/H PLANT



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DRAWING NO

10491/E/15

SCALE

N.T.S.

DATE

05/06/2020

CAD REF NO.

10491-E-DET

DWG-SIZE

A4

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MM

DESIGNED

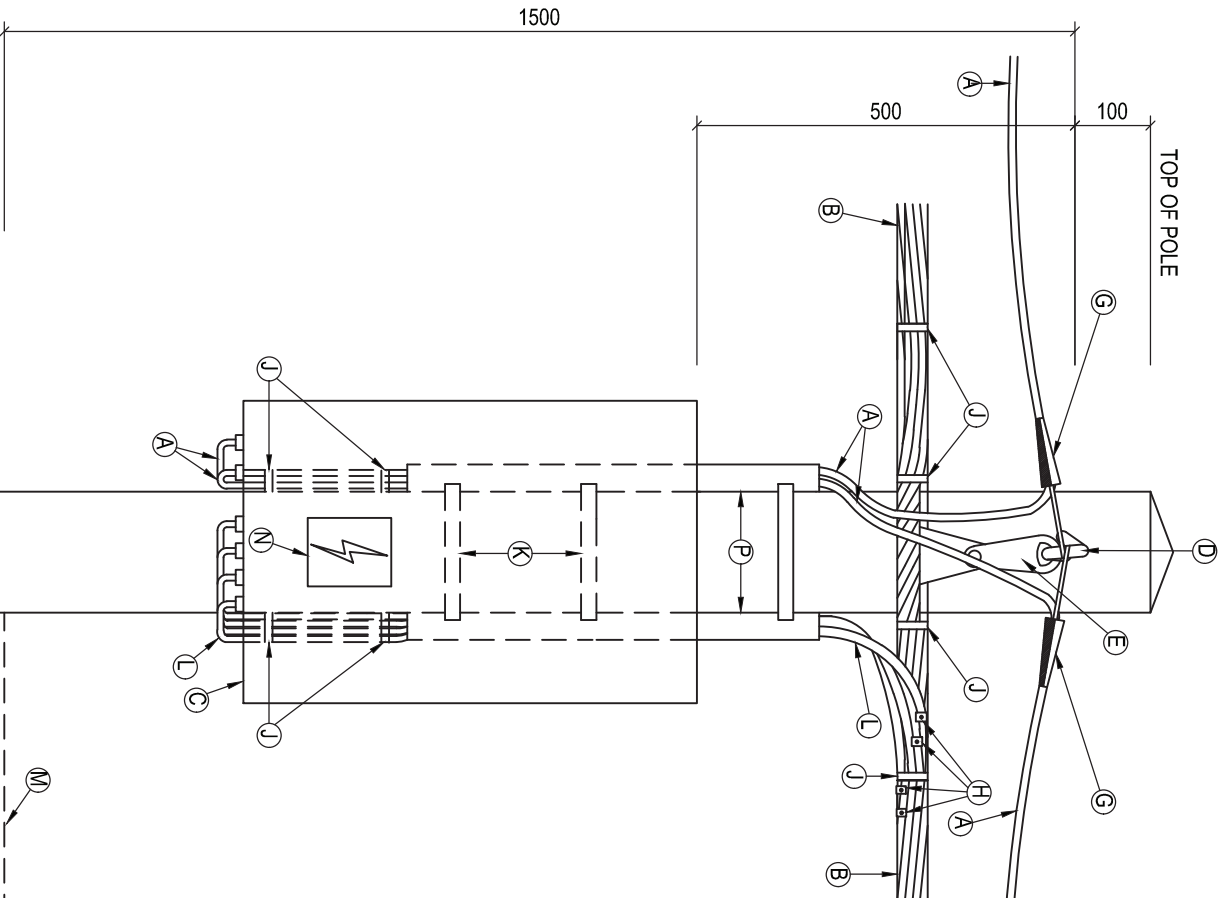
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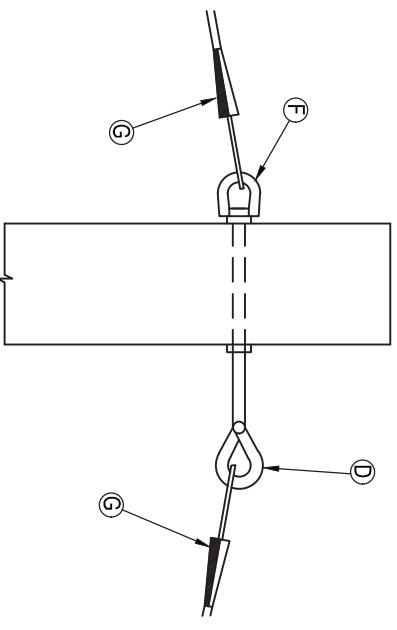


LEGEND

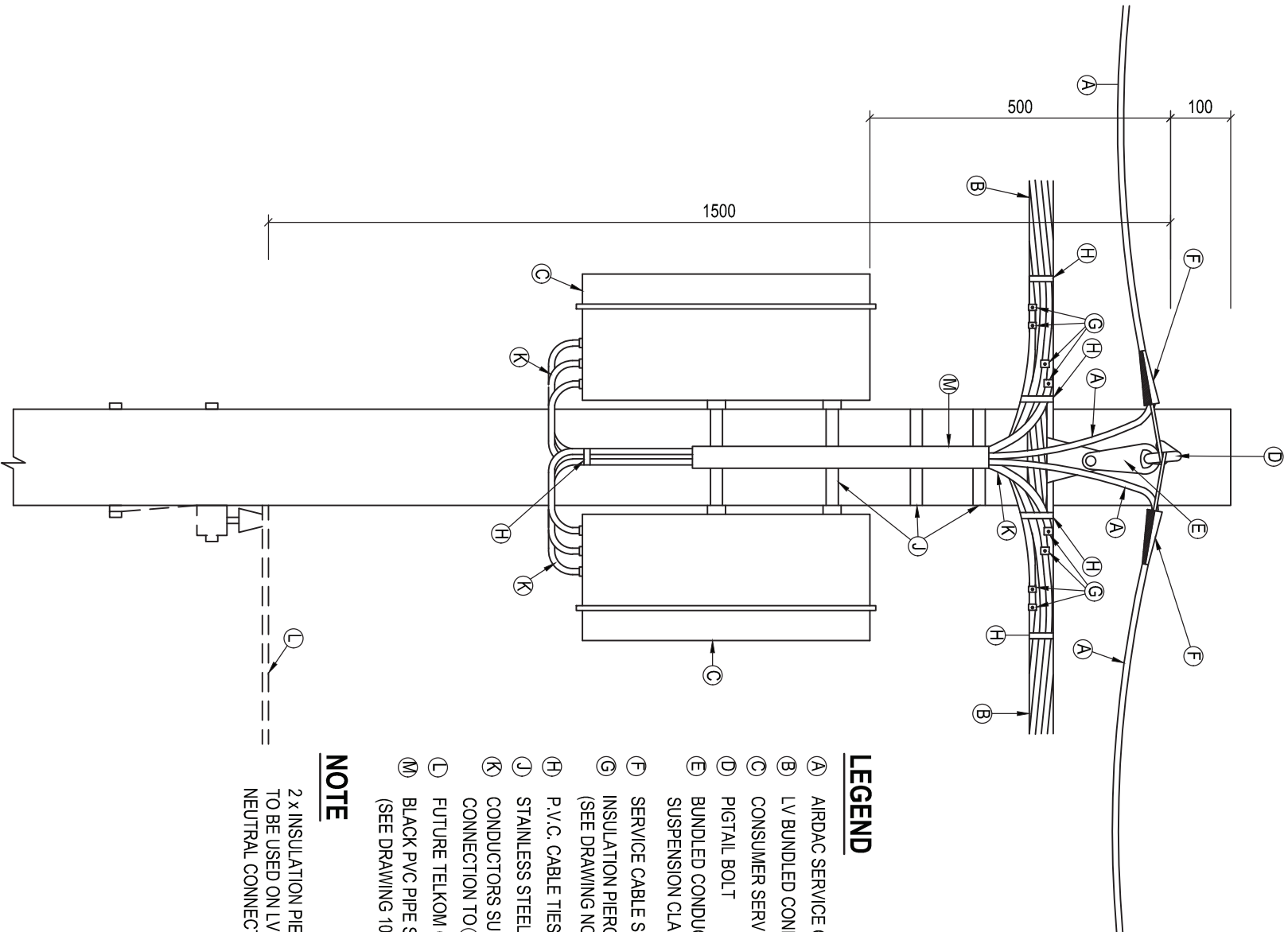
- (A) AIRDAC SERVICE CONNECTION CABLE
- (B) LV BUNDLED CONDUCTOR (FRENCH)
- (C) CONSUMER SERVICE CONNECTION BOX
- (D) PIGTAIL BOLT M16
- (E) BUNDLED CONDUCTOR INTERMEDIATE SUSPENSION CLAMP
- (F) EYE BOLT M16
- (G) SERVICE CABLE STRAIN CLAMP
- (H) INSULATION PIERCING CONNECTORS
- (I) PVC CABLE TIES
- (K) STAINLESS STEEL STRAP
- (L) CONDUCTORS SUPPLIED WITH (C) FOR CONNECTION TO (B).
- (M) FUTURE TELKOM O/H PLANT
- (N) DANGER NOTICE
- (P) BLACK PVC PIPE STRAPPED TO POLE (SEE DRAWING NO. 10491/E/16 FOR DETAIL)

NOTE

2 x INSULATION PIERCING CONNECTORS TO BE USED ON LV BUNDLED CONDUCTOR NEUTRAL CONNECTIONS.



SIDE VIEW SHOWING SERVICE CABLE STRAIN POINTS.

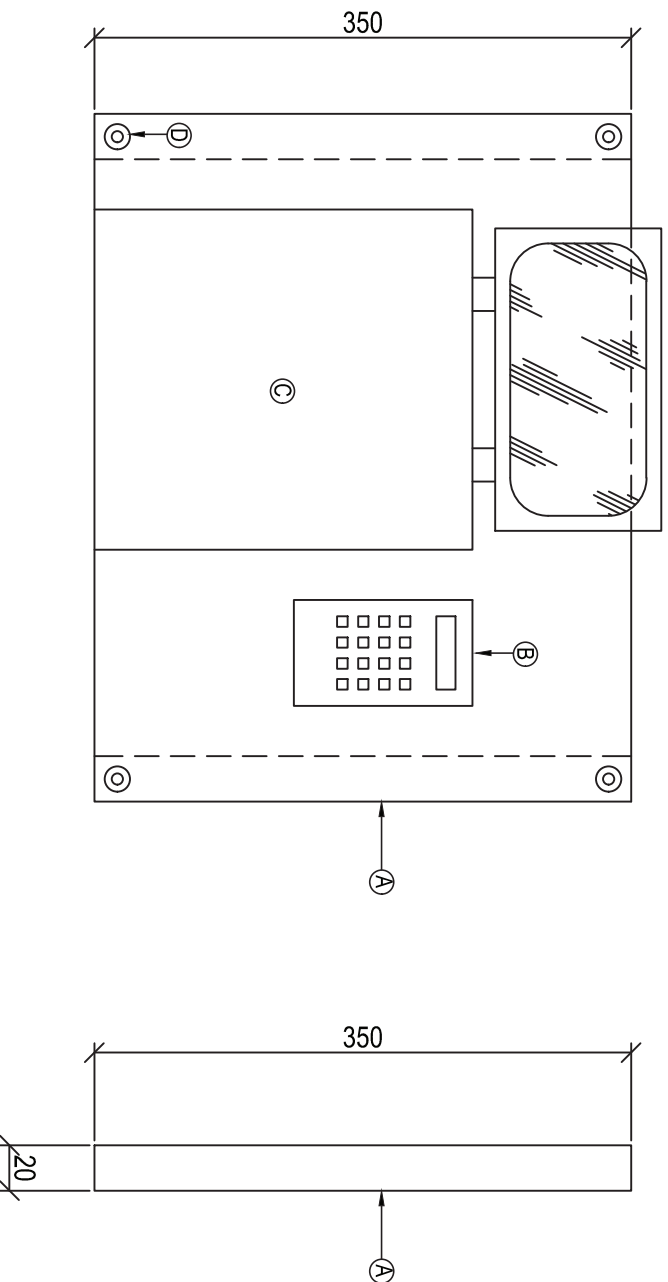


LEGEND

- (A) AIRDAC SERVICE CONNECTION CABLE
- (B) LV BUNDLED CONDUCTOR (FRENCH)
- (C) CONSUMER SERVICE CONNECTION BOX
- (D) PIGTAIL BOLT
- (E) BUNDLED CONDUCTOR INTERMEDIATE SUSPENSION CLAMP
- (F) SERVICE CABLE STRAIN CLAMP
- (G) INSULATION PIERCING CONNECTORS (SEE DRAWING NO. 10491/E/16)
- (H) P.V.C. CABLE TIES
- (I) STAINLESS STEEL STRAP
- (K) CONDUCTORS SUPPLIED WITH (C) FOR CONNECTION TO (B)
- (L) FUTURE TELKOM O/H PLANT
- (M) BLACK PVC PIPE STRAPPED TO POLE (SEE DRAWING 10491/E/16 FOR DETAIL)

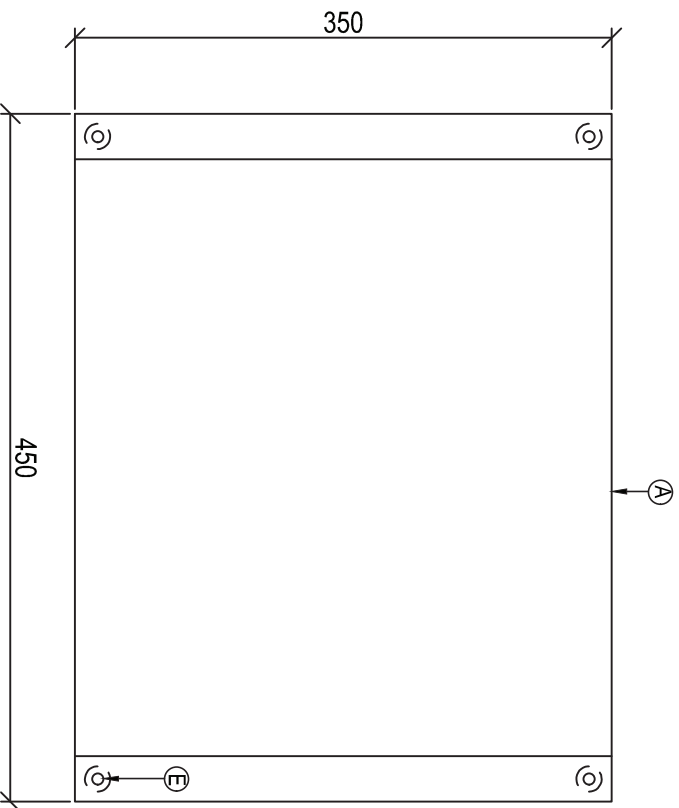
NOTE

2 x INSULATION PIERCING CONNECTORS TO BE USED ON LV BUNDLED CONDUCTOR NEUTRAL CONNECTIONS.



**FRONT VIEW ELEVATION WITH kWh
METER KEYPAD & READY BOARD**

**SIDE VIEW ELEVATION,
EXCLUDING kWh METER KEYPAD
AND READY BOARD**



**REAR VIEW ELEVATION, EXCLUDING kWh
METER KEYPAD AND READY BOARD**

- LEGEND**
- A** 450 x 350 x 20mm LAMINATED WOODEN MOUNTING BOARD FIXED TO WALL WITH 4 GALVANISED STEEL BOLTS / SELF-TAPPING SCREWS
 - B** kWh METER KEYPAD (USER INTERFACE UNIT)
 - C** READY BOARD
 - D** 16mm Ø HOLE FOR SCREW DRIVER ENTRY TO SECURE FIXING SCREWS
 - E** 6mm Ø HOLE FOR FIXING SCREWS

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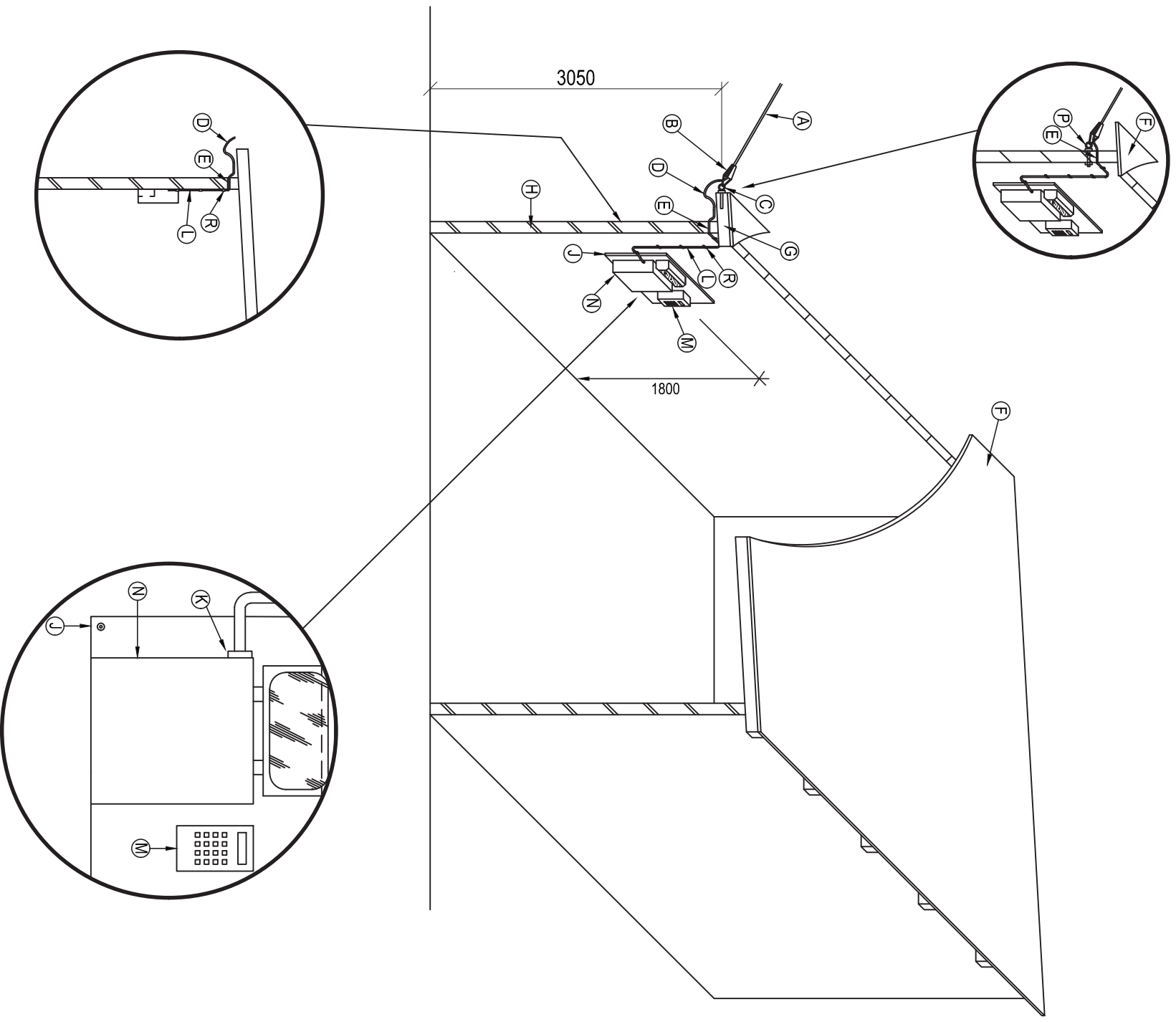
PROJECT
BULK INFRASTRUCTURE WORK AND ELECTRIFICATION OF 200 HOUSES AT KRUISFONTEIN IN HUMANSDORP (DOE WORK 2020/21)

DRAWING TITLE
MOUNTING BOARD DETAIL FOR SPLIT PREPAD kWh METER KEYPAD (UIU) AND READY BOARD

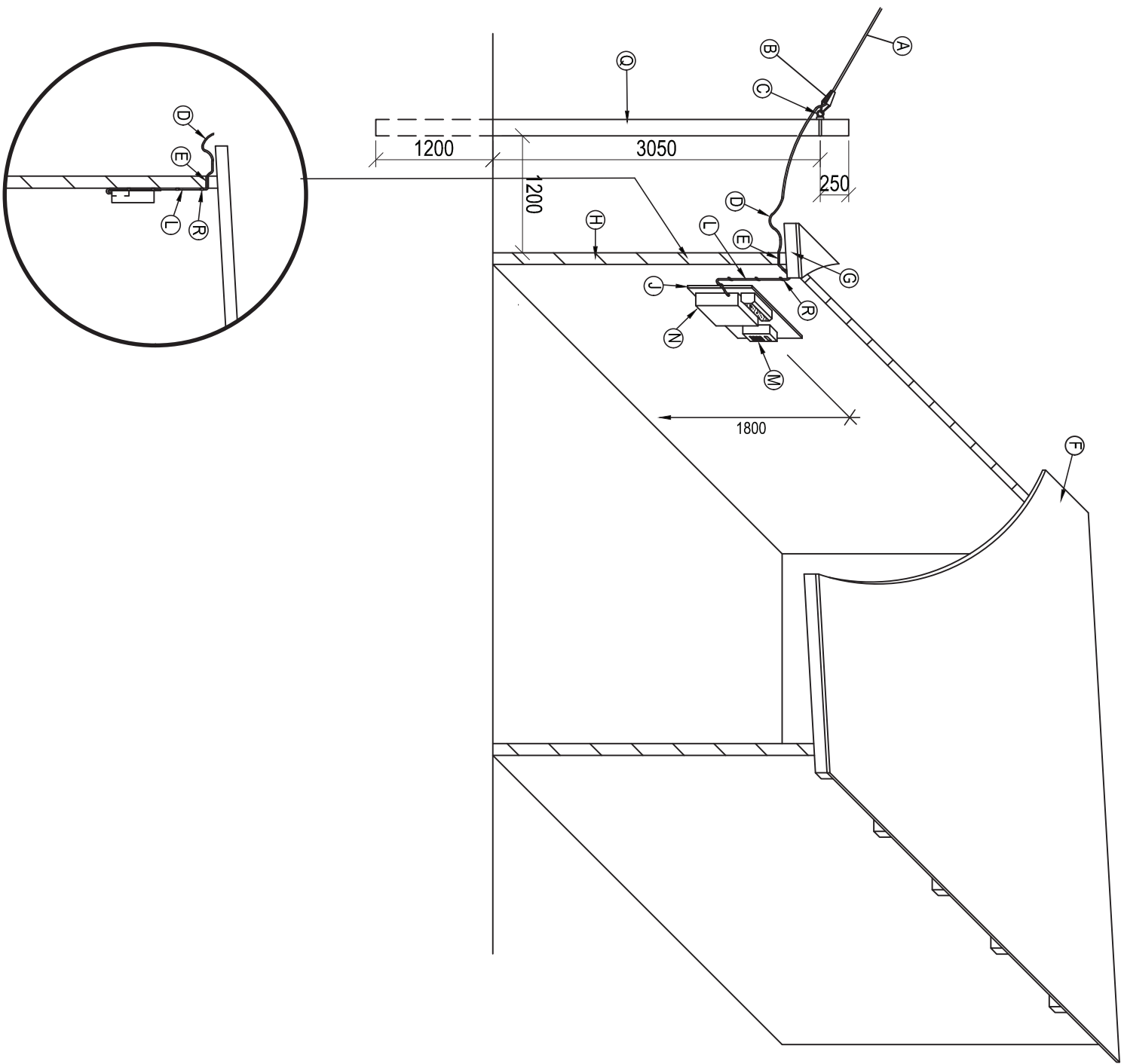
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SCALE N.T.S.	DATE 05/06/2020	CAD REF. NO. 10491-E-DET	DWG-SIZE A4
DRAWING NO 10491/E/19			REVISION

NOTE: REFER TO DRAWING NO'S 10491/E/22 & 23 FOR LEGEND AND NOTES

ALTERNATIVE "A"



NOTE: REFER TO DRAWING NOS 10491/E/22 & 23 FOR LEGEND AND NOTES





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PROJECT

BULK INFRASTRUCTURE WORK AND ELECTRIFICATION OF 200 HOUSES AT KRUISFONTEIN IN HUMANSDORP (DOE WORK 2020/21)

DRAWING TITLE

OH SERVICE CONNECTION: TYPICAL INSTALLATION IN HOUSE: ALTERNATIVE "B"

DRAWN

MM

DESIGNED

GSA

CHECKED

GSA

APPROVED

SCALE

N.T.S.

DATE

05/06/2020

CAD REF. NO.

10491-E-DET

DWG-SIZE

A4

DRAWING NO

10491/E/21

REVISION

LEGEND

- A AIRDAC SERVICE CONNECTION CABLE
- B STRAIN CLAMP
- C PIGTAIL SCREW
- D DRIP LOOP IN SERVICE CABLE
- E HOLE IN WALL WITH 25mm Ø PVC CONDUIT FOR SERVICE CABLE ENTRY, SEALED WITH SILICON SEALER
- F WOOD, ASBESTOS OR CORRUGATED IRON ROOF
- G WOODEN BEAM
- H WOOD, CORRUGATED IRON, CLAY OR BRICK WALLS
- J 450 x 350 x 20mm LAMINATED WOODEN MOUNTING BOARD FIXED TO WALL WITH 4 GALVANISED STEEL BOLTS/SELF-TAPPING SCREWS (SEE DRAWING NO. 10491/E/19 FOR DETAIL).
- K PVC COMPRESSION GLAND
- L 10mm² AIRDAC, FIXED TO WALL
- M SPLIT PREPAID kWh METER KEYPAD (UJU)
- N READY BOARD WITH BULKHEAD LIGHT FITTING
- P M10 GALVANISED STEEL EYE BOLT
- Q 4,5m WOODEN POLE
- R GALVANISED WALL SADDLES FIXING AIRDAC CABLE TO WALL, SPACED MIN. 400mm APART.



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PROJECT

BULK INFRASTRUCTURE WORK AND ELECTRIFICATION OF 200 HOUSES AT KRUISFONTEIN IN HUMANSDORP (DOE WORK 2020/21)

DRAWING TITLE

LEGEND FOR DRAWING NO'S.
10491/E/20 & 21

DRAWN

MM

DESIGNED

GSA

CHECKED

GSA

APPROVED

SCALE

N.T.S.

DATE

05/06/2020

CAD REF NO.

10491-E-DET

DWG-SIZE

A4

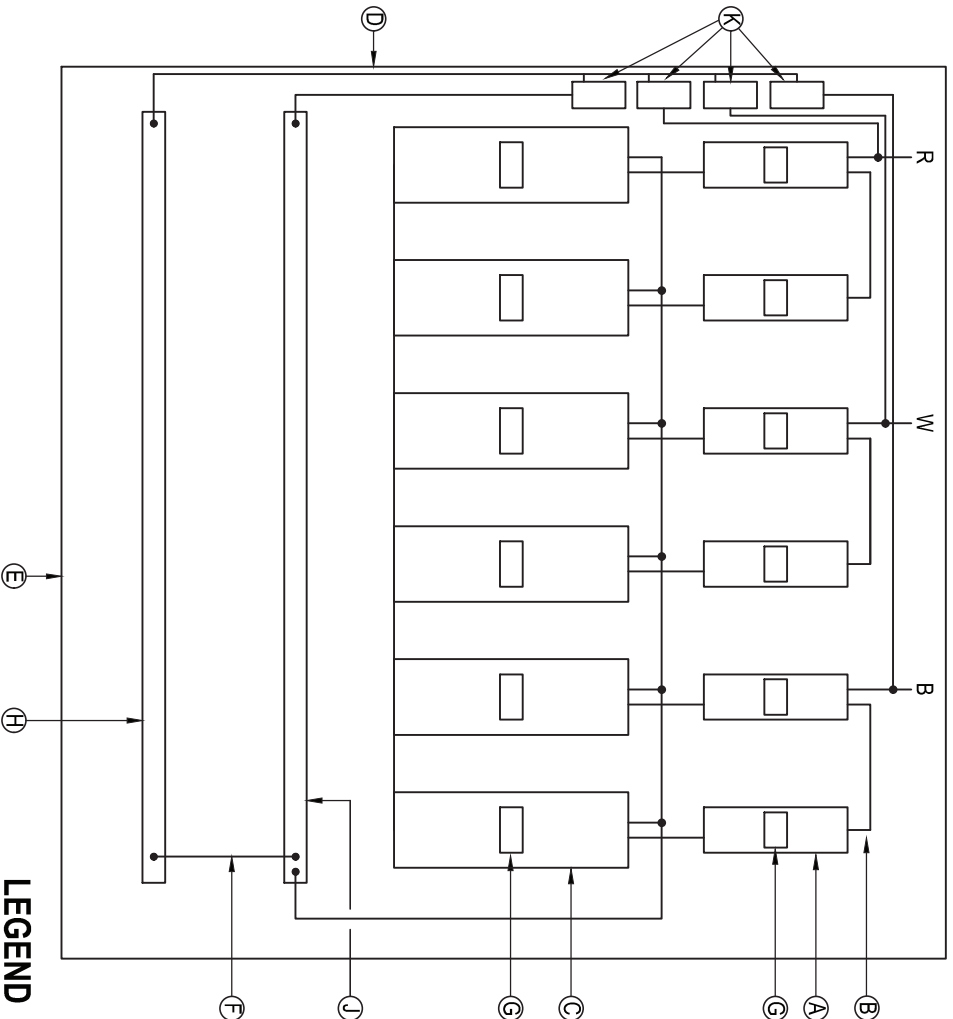
DRAWING NO

10491/E/22

REVISION

NOTES

- 1) IT IS THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE EACH ERF'S SITE CONDITIONS IN ORDER TO DETERMINE THE BEST METHOD OF CONNECTION TO THE HOUSE CONCERNED.
- 2) WHERE THE ROOF IS SUPPORTED BY WOODEN BEAMS OR IF THESE BEAMS ARE FOUND TO BE SUITABLE FOR THE ATTACHMENT OF THE SERVICE CABLE, THEN ALTERNATIVE "A" IS TO BE USED.
- 3) WHERE THE WALLS AND STRUCTURE OF THE HOUSE ARE FOUND TO BE UNSUITABLE FOR THE ATTACHMENT OF THE SERVICE CABLE OR IF NO SUITABLE POINT OF ATTACHMENT CAN BE FOUND OR IF THE ONLY ACCEPTABLE POINT OF ATTACHMENT TO THE HOUSE IS LESS THAN THE MINIMUM OF 2800 mm FROM GROUND LEVEL, THEN ALTERNATIVE "B" IS TO BE USED.
- 4) IF THE SOIL AROUND THE 4.5m POLE IS NOT SUITABLE FOR COMPACTION THEN A SAND CEMENT MIXTURE, OF THE RATIO 10:1, IS TO BE USED AS BACKFILL.
- 5) MOUNT THE SPLIT PREPAID kWh METER KEYPAD (U1U) AND READY BOARD ON THE WOODEN MOUNTING BOARD USING GALVANISED SELF TAPPING SCREWS
- 6) THE MOUNTING BOARD WITH THE EQUIPMENT MUST NOT BE MOUNTED WITHIN A RADIUS OF 1000mm FROM ANY WATER TAP.
- 7) THE MOUNTING BOARD SHALL BE MOUNTED SO THAT THE TOP OF THE BOARD IS 1800mm ABOVE THE FLOOR.
- 8) SERVICE CABLE ENTRY INTO HOUSE TO BE SEALED AT BOTH ENDS WITH SILICON SEALER AFTER INSTALLATION OF THE CABLE. WHERE POSSIBLE, THE ENTRY MUST BE MADE DIRECTLY ABOVE THE MOUNTING BOARD.
- 9) THE ERF DESIGNATION SHALL BE NEATLY STENCILLED WITH A PERMANENT MARKER ON THE MOUNTING BOARD. 20mm HIGH LETTERING.

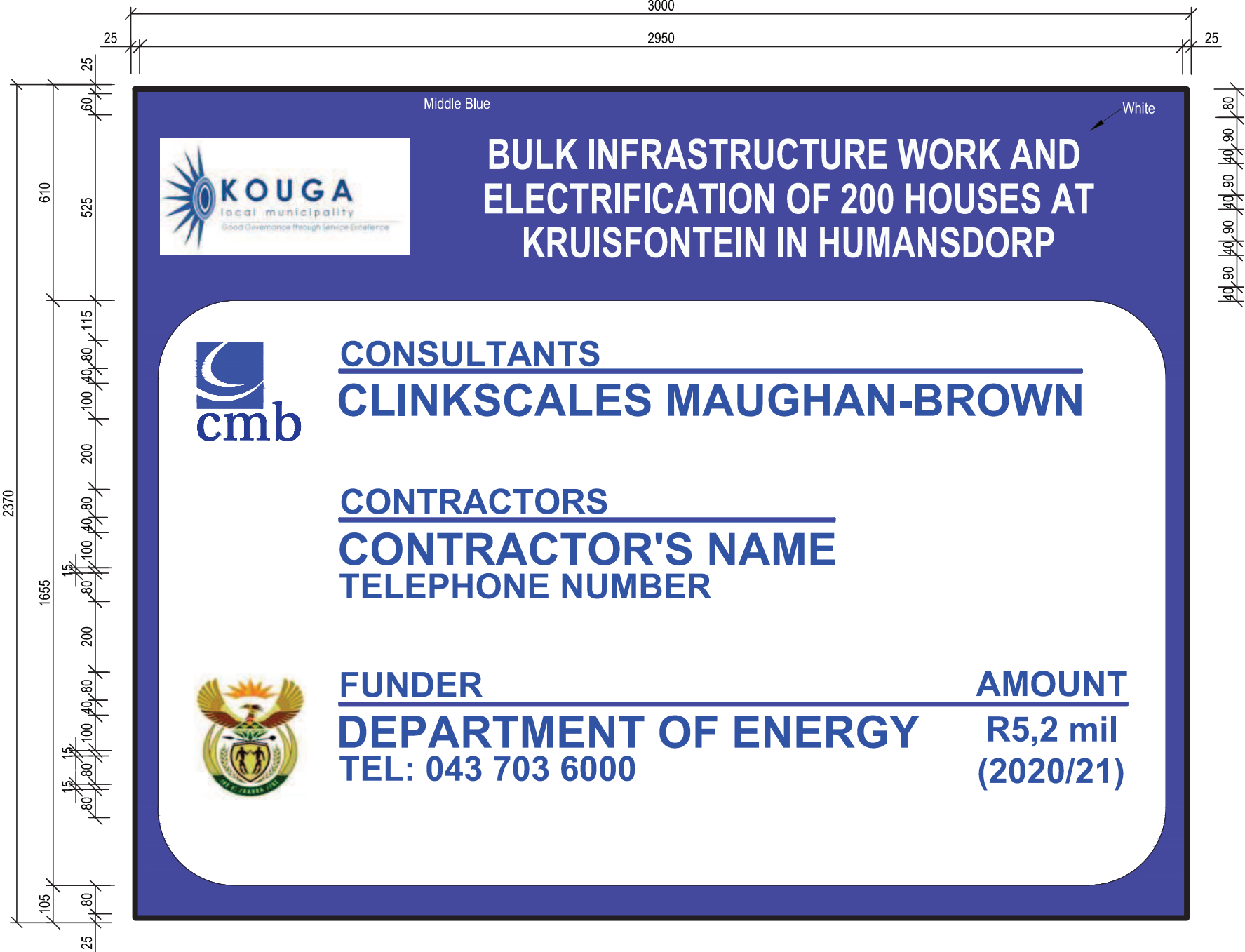


LEGEND

- Ⓐ 63A SP MCB'S, CBI TYPE QF, ORANGE HANDLE (CURVE 1) FIXED TO CLIP IN FRAME COMPLETE WITH SHROUD.
- Ⓑ 16mm² Cu INSULATED CONDUCTOR CONNECTIONS TO PHASES.
- Ⓒ SPLIT PREPAID kWh METER MEASUREMENT AND CONTROL UNITS (MCU'S) FIXED TO DIN RAIL
- Ⓓ POLYETHYLENE POLE MOUNTED CONSUMER SERVICE CONNECTION BOX (CSCB) FITTED WITH STAINLESS STEEL MOUNTING BRACKETS SUITABLE FOR FIXING BOX TO POLE WITH 19mm STAINLESS STEEL STRAPS. CSCB TO BE PROVIDED WITH A DOOR THAT IS OPENED UPWARDS AND A FACILITY TO KEEP DOOR IN OPEN POSITION.
- Ⓔ PRE-DRILLED FOR LV CONDUCTOR
- Ⓕ BRIDGE BETWEEN NEUTRAL AND EARTH BAR USING 35mm² Cu BLACK PVC INSULATED CONDUCTOR
- Ⓖ LABEL TO INDICATE ERF NO. SERVED BY MCB / METER
- Ⓗ EARTH BAR
- Ⓘ NEUTRAL BAR
- Ⓚ 4 x SURGE ARRESTORS CBI TYPE QFLN4(13)
1. BOX TO BE PROVIDED COMPLETE WITH MIN. 2,5m LONG 16mm² Cu BLACK, UV STABLE, CONDUCTORS FOR CONNECTIONS TO OVERHEAD LINE. RED, BLUE & WHITE COLOUR CODED HEAT SHRINK TAGS TO BE INSTALLED ON ALL CONDUCTOR TAIL ENDS.
2. * TO BE SUPPLIED WITH CONSUMER SERVICE CONNECTION BOX.
3. ALL BOLTS, NUTS, POP RIVETS, HINGES, HASP AND STAPLE TO BE STAINLESS STEEL.
4. CONTRACTOR TO ENSURE THAT THE CSCB IS OF SUFFICIENT SIZE TO ACCOMMODATE ALL THE EQUIPMENT SHOWN.

NOTES

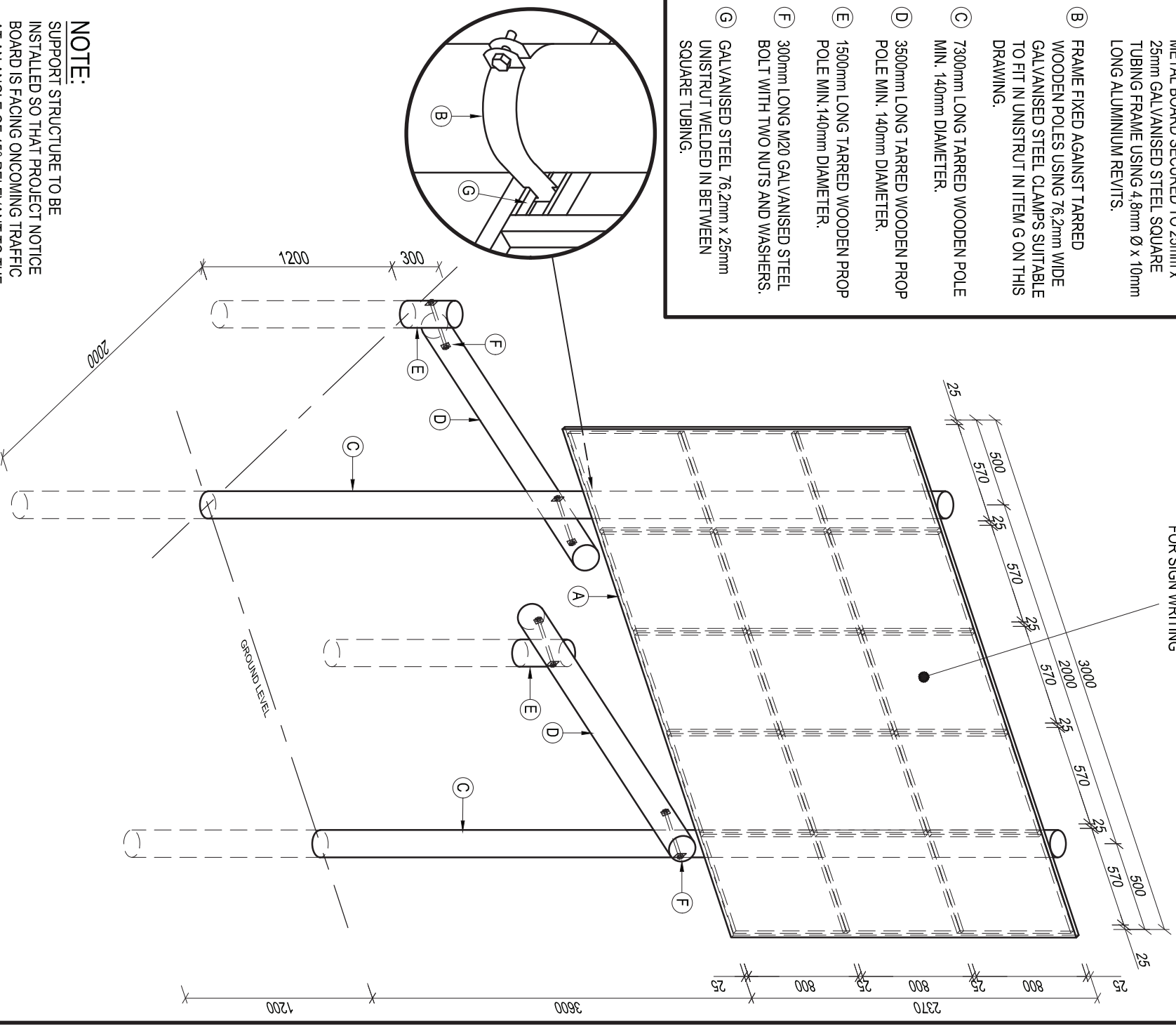
INTERNAL LAYOUT



LEGEND

- ① 3000mm x 2370mm, 1mm THICK SHEET METAL BOARD SECURED TO 25mm x 25mm GALVANISED STEEL SQUARE TUBING FRAME USING 4.8mm Ø x 10mm LONG ALUMINIUM REVITS.
- ② FRAME FIXED AGAINST TARRED WOODEN POLES USING 76.2mm WIDE GALVANISED STEEL CLAMPS SUITABLE TO FIT IN UNISTRUT IN ITEM G ON THIS DRAWING.
- ③ 7300mm LONG TARRED WOODEN POLE MIN. 140mm DIAMETER.
- ④ 3500mm LONG TARRED WOODEN PROP POLE MIN. 140mm DIAMETER.
- ⑤ 1500mm LONG TARRED WOODEN PROP POLE MIN. 140mm DIAMETER.
- ⑥ 300mm LONG M20 GALVANISED STEEL BOLT WITH TWO NUTS AND WASHERS.
- ⑦ GALVANISED STEEL 76.2mm x 25mm UNISTRUT WELDED IN BETWEEN SQUARE TUBING.

REFER TO DRAWING No. 10491/E/25
FOR SIGN WRITING



NOTE:

SUPPORT STRUCTURE TO BE INSTALLED SO THAT PROJECT NOTICE BOARD IS FACING ONCOMING TRAFFIC AT AN ANGLE OF 45° RELEVANT TO THE ROAD.





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PROJECT
BULK INFRASTRUCTURE WORK AND
ELECTRIFICATION OF 200 HOUSES AT
KRUISFONTEIN IN HUMANSDORP
(DOE WORK 2020/21)

DRAWING TITLE
**PROJECT NOTICE BOARD
SUPPORT STRUCTURE DETAIL**

DRAWN
MVM

DESIGNER	DATE
GSA	05/06/20

CHECKED	CAD REF NO.
GSA	10491-E-26

APPROVED

DWG-SIZE
A4

DRAWING NO.

10491/E/26

REVISION