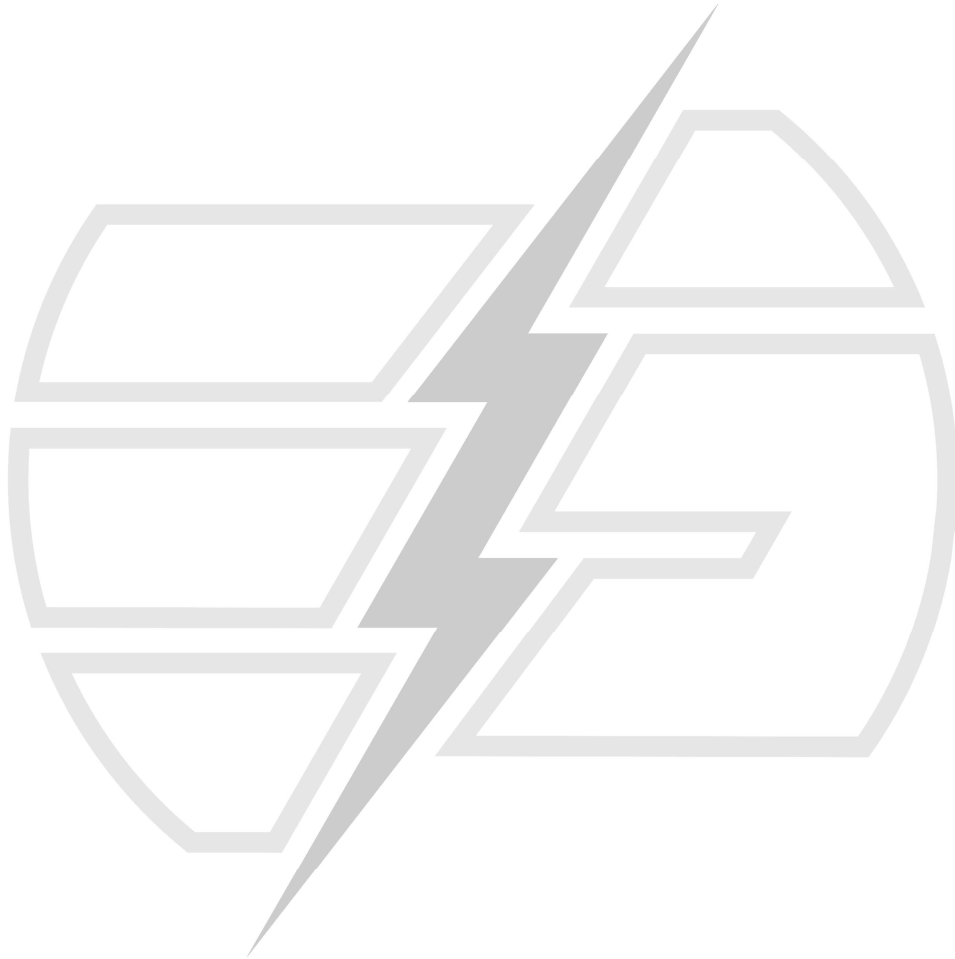


## **SUB-SECTION 6**

### **DRAWINGS**





ES015.21.001\_MIDDELBURG ITCC

EE/015.21.001/T2

→ DRAWING TYPE  
→ PROJECT NUMBER  
→ DISCIPLINE

## ELECTRICAL & ELECTRONIC DRAWINGS

Discipline	Type	Type Code	RANGE	SCOPE	BID SPEC REVISION	COMMENTS
EE - Electrical Eng	Site Layout	S	1-999	All electrical and electronic layouts that show site services that cannot be shown on an individual building layout		
EE - Electrical Eng	Building Lighting Layout	L	1-999	Internal building lighting layouts		
EE - Electrical Eng	Building Small Power Layout	P	1-999	Internal building power layouts		
EE - Electrical Eng	Single Line Diagrams	SLD	1-999	Line Diagrams		
Middelburg ITCC	Site Layout	S	1	Site MV/LV layouts & Demolition	B	
Consumer Kiosk	Single Line Diagrams	SLD	1	Line Diagrams	B	
Miniature Substation	Single Line Diagrams	SLD	2	Line Diagrams	B	
Ring Main Unit	Single Line Diagrams	SLD	3	Line Diagrams	A	
SLD Legend	Single Line Diagrams	SLD	050	Line Diagrams	A	
Electrical civil works	Standard Detail	STD	001	Standard Details Layouts	A	
MV overhead lines - Intermediate Structures	Standard Detail	STD	100	Standard Details Layouts	A	
MV overhead lines - Strain Structures	Standard Detail	STD	101	Standard Details Layouts	A	
MV overhead lines - Terminal Structures	Standard Detail	STD	102	Standard Details Layouts	A	
MV overhead lines - Take-off Structures	Standard Detail	STD	103	Standard Details Layouts	A	
MV overhead lines - Equipment Structures	Standard Detail	STD	104	Standard Details Layouts	A	
MV overhead lines - Special Structures	Standard Detail	STD	105	Standard Details Layouts	A	
LV Bundle lines - Take-off Structures from Strain	Standard Detail	STD	106	Standard Details Layouts	A	
LV Bundle lines - Intermediate Structures	Standard Detail	STD	107	Standard Details Layouts	A	
LV Bundle lines - Terminal Structures	Standard Detail	STD	108	Standard Details Layouts	A	
LV Bundle lines - Strain Structures (0-60deg)	Standard Detail	STD	109	Standard Details Layouts	A	
LV Bundle lines - Strain Structures (60-90deg)	Standard Detail	STD	110	Standard Details Layouts	A	
LV Bundle lines - Take-off Structures from Inter	Standard Detail	STD	111	Standard Details Layouts	A	





SITE PLAN FOR  
DEMOLITION AND  
INSTALLATION OF NEW  
WORKS FOR ERF 19  
(N.T.S)

Architects Reference Drawing

REVISION  
0

Legend

SYMBOL	DESCRIPTION
	- ELECTRICAL MINI-KIOSK
	- TRANSFORMER/MINI SUB
	- TRF 1 XXX kVA
	- INDICATES TRANSFORMER AREAS
	- STREETLIGHT ON FIBREGLASS POLE
	- MV/LV STRUCTURE
	- LV STRUCTURE
	- MV STRUCTURE
	- MV STAY
	- MV STRUT
	- MV FLYING STAY
	- LV STAY
	- LV STRUT
	- LV FLYING STAY
	- FUSED CUT OUT
	- RING MAIN UNIT

CABLE/CONDUCTOR LEGEND:

	M - 30	MV - MINK 3 PHASE OVERHEAD RETICULATION
	LV70-30	LV - 70mm ABC BUNDLE OVERHEAD LINE
	LV35-30	LV - 35mm ABC BUNDLE OVERHEAD LINE
	10	LV - 10mm AIRDAC OVERHEAD LINE (SERVICE CONN)

THIS APPLICATION

REFERENCE DRAWINGS	
DRAWING No.	DESCRIPTION

REVISIONS (Revisions Continued on Drawing Layout)			
Rev	DATE	DESCRIPTION	APPROVED
A	01/09/21	For Tender Purposes	
B	21/06/22	Refer to Detail	

SCALE		N.T.S	
DRAWN BY	DATE	DESIGNED BY	DATE
MKD Group	01/09/21	A. Sieberhagen	01/09/21
CHECKED BY	DATE	APPROVED BY	DATE
A. Sieberhagen	01/09/21	A. Sieberhagen	01/09/21

CLIENT

Province of the  
**EASTERN CAPE**  
TRANSPORT

TENDER

ELECTRO STORM  
Engineering Consultants

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CLIENT

**MIDDELBURG ITCC**  
PROPOSED TRAFFIC CONTROL  
CENTRE ON PTN. 14 OF REM. OF PTN 11 OF FAM 81 GROOTFONTEIN

SUB TITLE

**MV/LV DEMOLITION AND  
INSTALLATION LAYOUT**

DRAWING NUMBER:

REVISION

EE015.21.001/S1

B



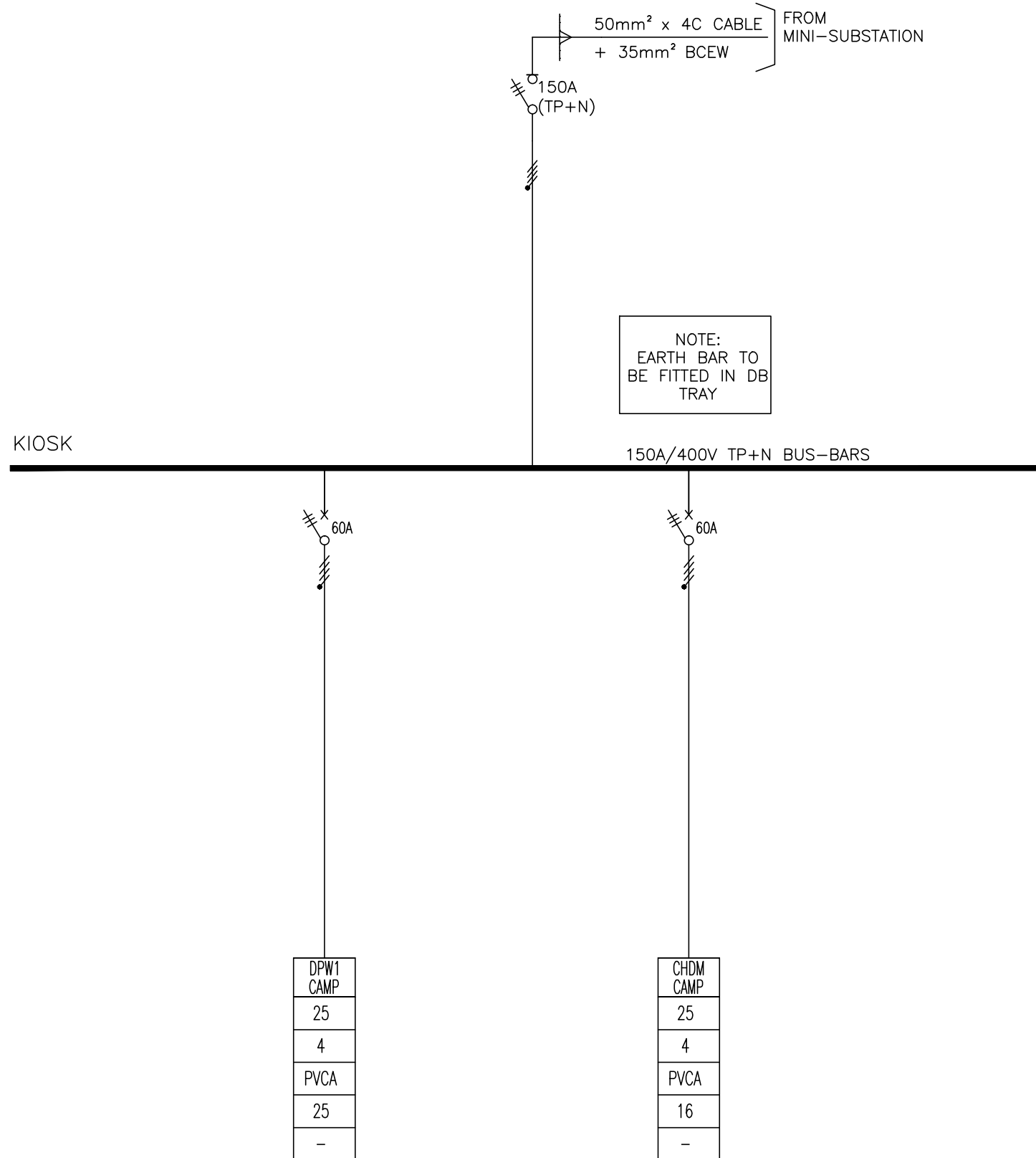
FRONT INSIDE PLATE/PANEL COLOUR  
CODING  
AS PER SANS10142 (LETTERING TO SUIT)

NON-ESSENTIAL	ESSENTIAL	UPS
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NOTES:

1. CABLE TYPES:  
SPVC = SINGLE CORE PVC  
PVCa = PVC/SWA/PVC  
BUT = BUTYL OR SILICON INSULATED
2. "F" INDICATES FAULT LIMITING MCCB
3. ALL ELUS: AS SPECIFIED
4. C1 DENOTES CURVE 1 (SLOW) THERMAL TRIP

CIRCUIT NUMBER
CONDUCTOR mm <sup>2</sup>
NUMBER OF CORES
CABLE TYPE
EARTH WIRE mm <sup>2</sup>
CONDUIT/SLEEVE DIA (mm)

[illegible]

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Web: [www.eseconsult.co.za](http://www.eseconsult.co.za)

DRAWN BY	MKDgroup
DATE	14/03/2022
APPROVED	A. SIEBERHAGEN
SCALE	N.T.S



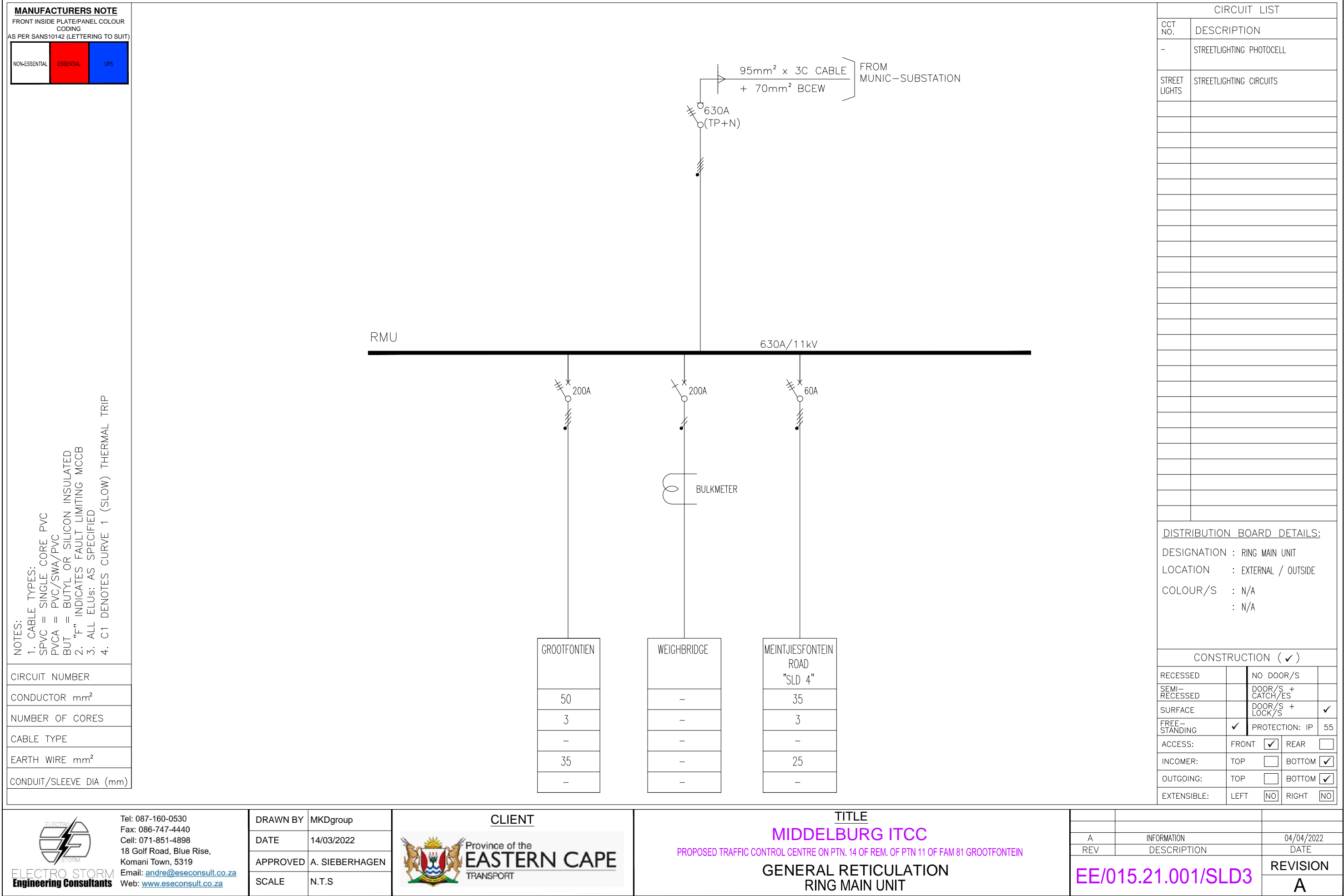
CLIENT

Province of the  
**EASTERN CAPE**  
TRANSPORT

**TITLE**  
**MIDDELBURG ITCC**  
**PROPOSED TRAFFIC CONTROL CENTRE ON PTN. 14 OF REM. OF PTN 11 OF FAM 81 GROOTFONTEIN**  
**GENERAL RETICULATION**  
**CONSUMER KIOSK SLD**

B	DB COLOUR & CABLE TYPE REV	14/03/2022
A	INFORMATION	14/03/2022
REV	DESCRIPTION	DATE
EE/015.21.001/SLD1		REVISION
		B





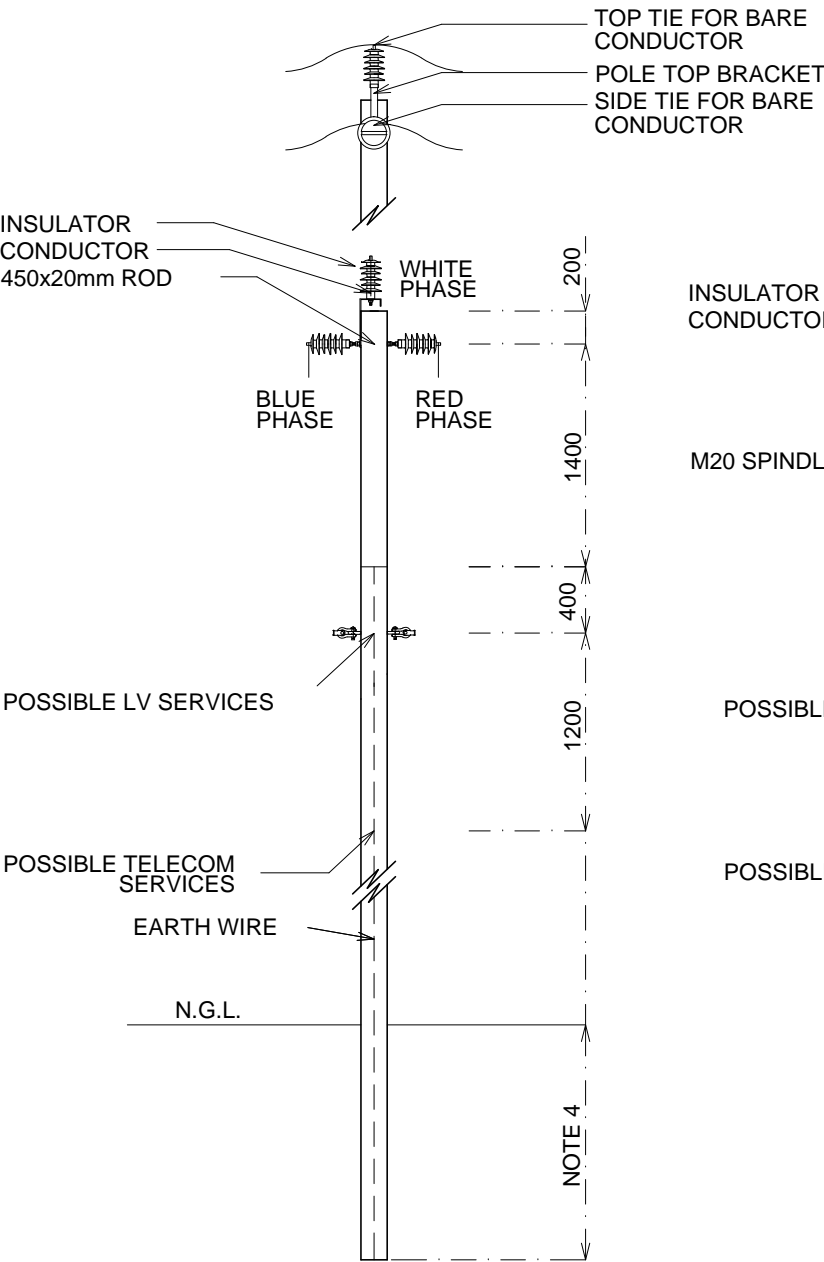


	MCB, MCCB OR ACB, (X=RATING)		PLUG-IN, WITHDRAWABLE CONNECTION
	EARTH LEAKAGE MCB OR MCCB (X=RATING) SENSITIVITY=30mA UNLESS OTHERWISE STATED		EARTH
	SWITCH DISCONNECTOR (X=RATING) NORMAL AND LOCKABLE (-L) INDICATED THUS		DIODE
	SURGE DIVERTER/LIGHTNING ARRESTOR		LIGHT EMITTING DIODE (L.E.D)
	60/3 – CONTACTOR –230V COIL. RATING AND NO. AC3 OF POLES INDICATED.		a: INTERNAL CONTROL WIRING b: EXTERNAL CONTROL WIRING c: TERMINAL
	- TIMER – DELAYED OFF.RHOMBERG ST-111 (0-240min)		BATTERY OF PRIMARY CELLS
	- PILOT LAMP 22mm DIA MULTI-LED TYPE.(GREEN) "HEATING ON"		a: RECTIFIER b: INVERTER c: UPS
	- PUSH BUTTON 22mm DIA.		a: MOTOR b: GENERATOR
	- CLIP IN WIRING TERMINALS		CAPACITOR
	- TIME SWITCH – 7 DAY ELECTRONIC:- TYPE:THEBEN-TR612 OR EQUAL.		POLES/CONDUCTORS a: SP+N b: DP c: TP d: TP+N
	- BELL TRANSFORMER – CBI TYPE SAB		a: MAKE CONTACT b: BREAK CONTACT
	- SURGE ARRESTOR(SABS / IEC 61643-) - RATING AND NUMBER OF POLES SHOWN.		a: DELAYED MAKE CONTACT b: DELAYED BREAK CONTACT
	CONNECTING LINK a: CLOSED b: OPEN		a: SPRING-RETURN PRESS TO MAKE BUTTON b: SPRING-RETURN PRESS TO BREAK BUTTON
	KILOWATT-HOUR METER		ACTUATOR COILS a: CONTACTOR b: TIMER (STATE TIME) c: RELAY
	MOTOR STARTER X=TYPE AS FOLLOWS DOL: DIRECT-ON-LINE SD: STAR DELTA		STAR-DELTA POWER TRANSFORMER
	CABLE TERMINATION		THERMAL TRIP UNIT
	BUS-BAR		MAGNETIC TRIP UNIT
	TERMINAL STRIP		a: LATCHING MAKE CONTACT b: LATCHING BREAK CONTACT
	PHOTOCELL (Day/Night Sensor)		CHANGEOVER SWITCH (BLOCK DIAGRAMS)
	SWITCH		FUSES (RATING AS SPECIFIED)
	16A PHOTOCELL WITH BYPASS ARRANGEMENT (X-RATING)		RELAY



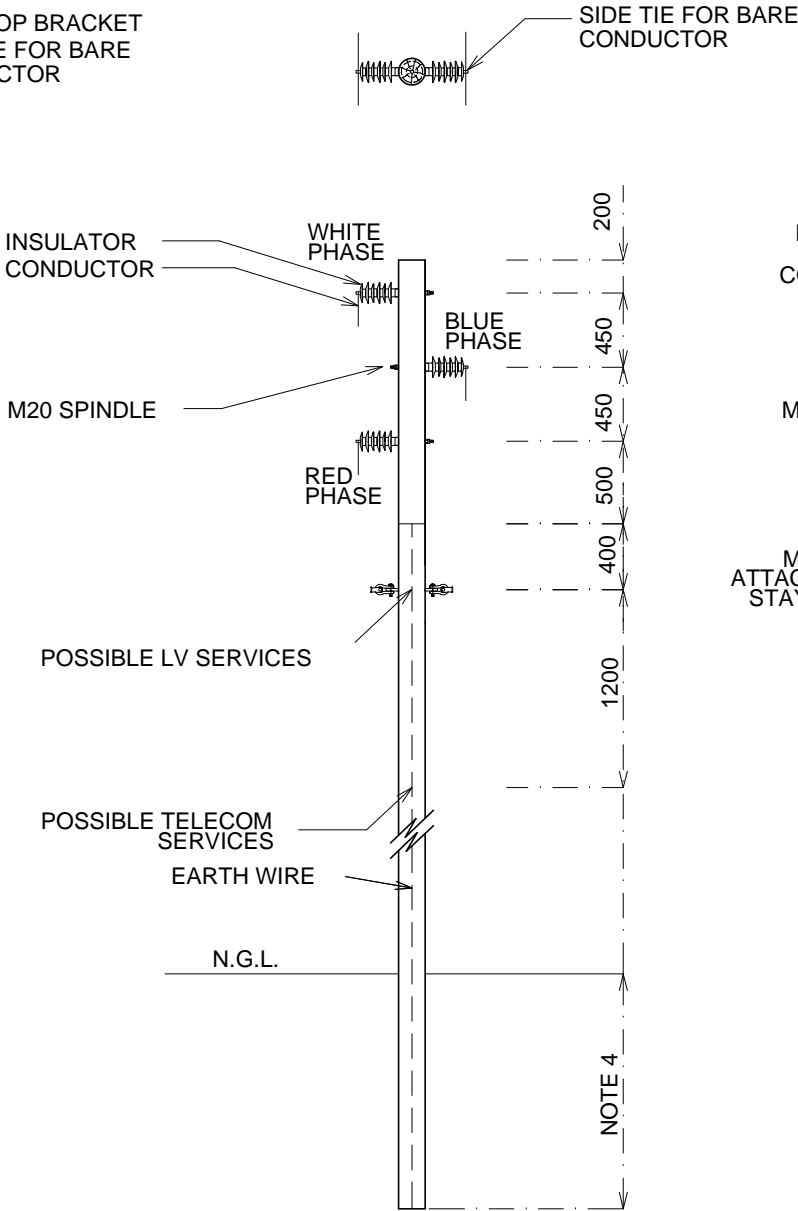
- NOTES :
- 1) ALL HOLES DRILLED ON SITE TO BE IMPREGNATED WITH SAME PRESERVATIVE AS USED ON THE POLE.
  - 2) ALL DIMENSIONS IN MILLIMETRES
  - 3) POLES TO BE MATCHED AND A PAIR SELECTED OF SIMILAR DIAMETER, LENGTH AND APPEARANCE WHERE APPLICABLE
  - 4) POLE PLANTING DEPTH CHART:

POLE LENGTH	DEPTH
9m	1.5m
10m	1.6m
11m	1.8m
12m	2.0m



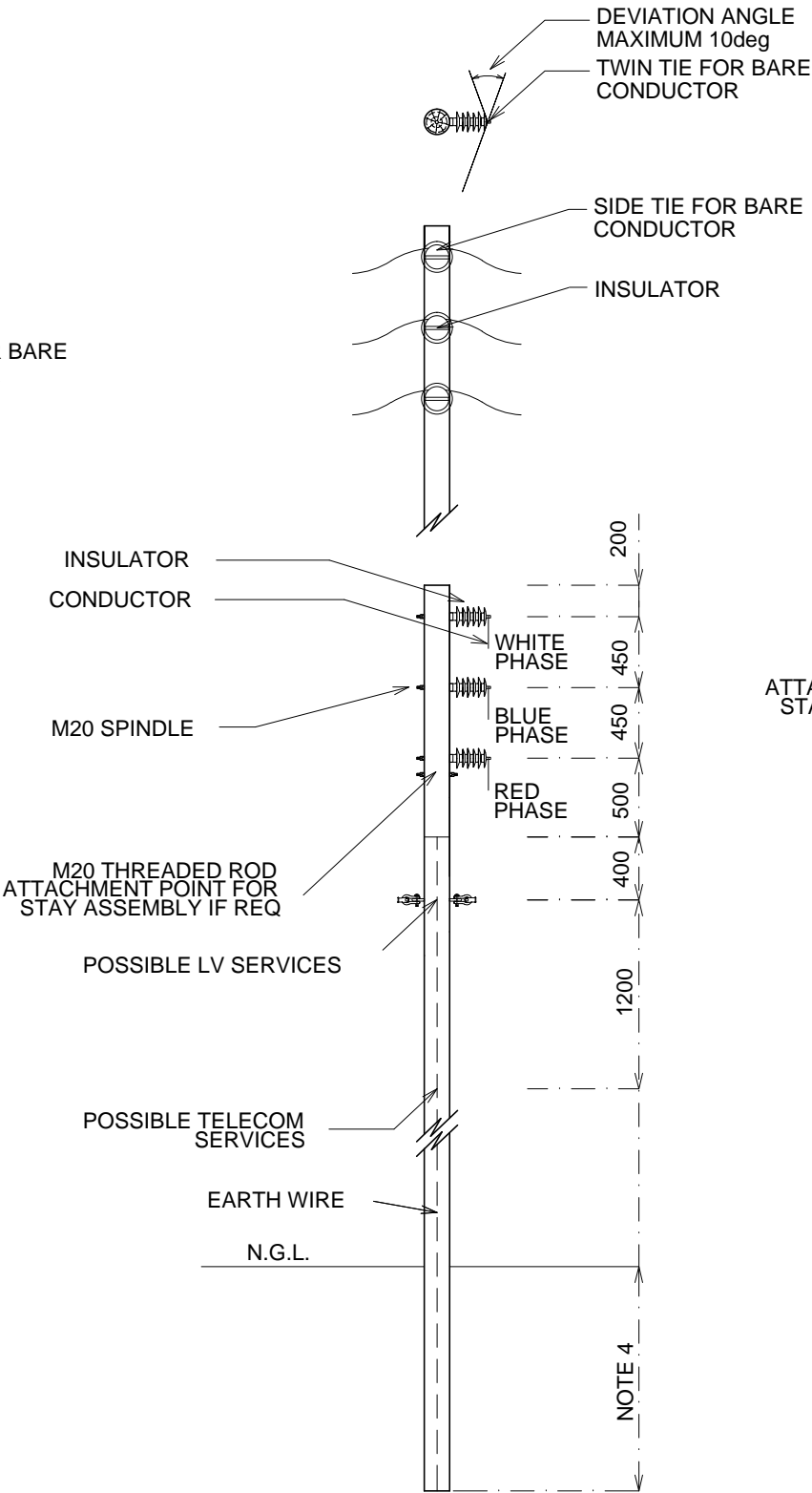
ELEVATION

0deg - DELTA



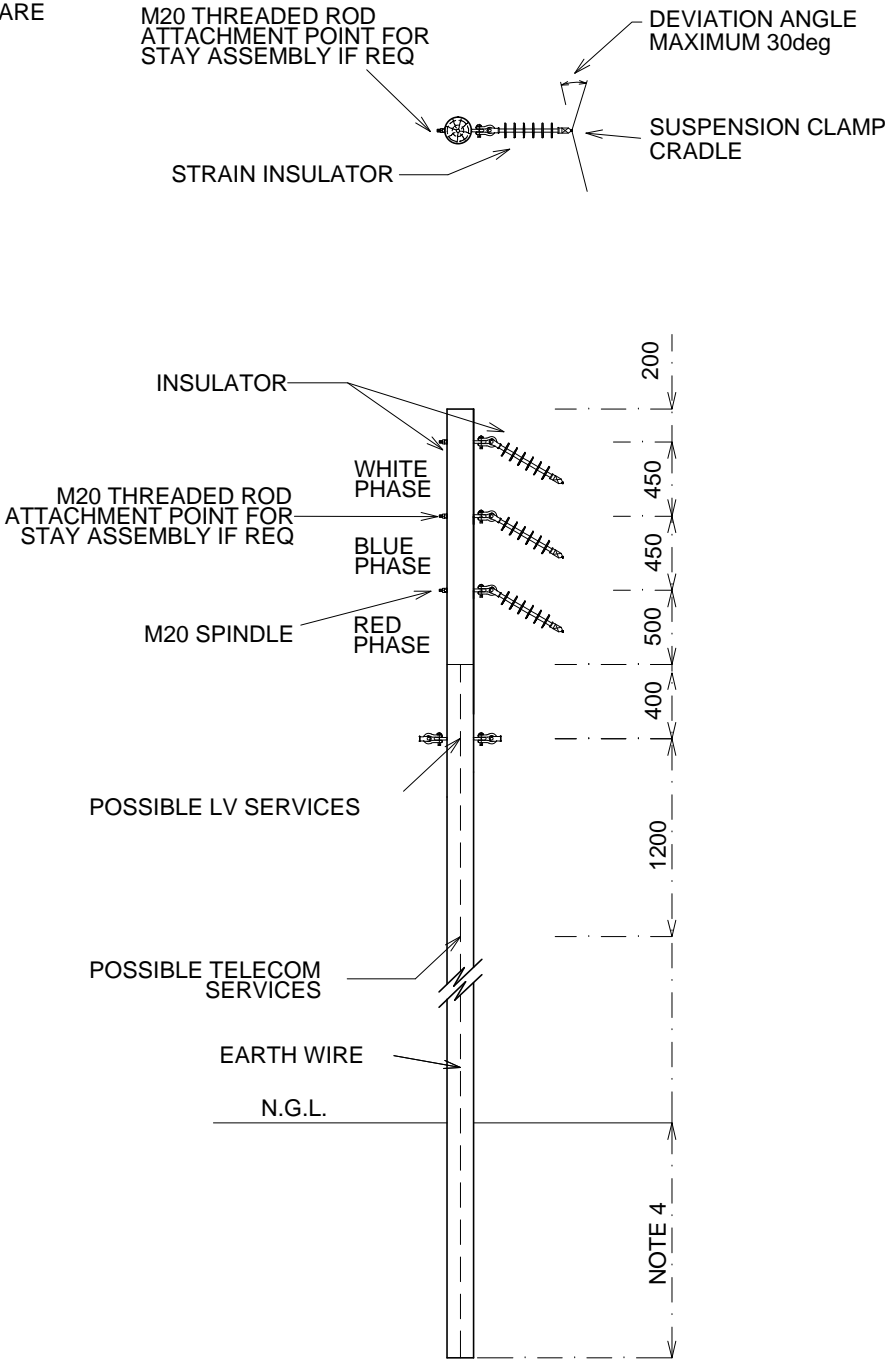
ELEVATION

0deg - STAGGERED VERTICAL



ELEVATION

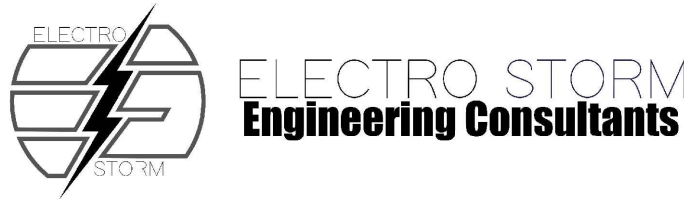
1-10deg - VERTICAL



ELEVATION

10-30deg - VERTICAL

INFORMATION



DRAWN BY	A. SIEBERHAGEN
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SCALE	N.T.S

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TITLE  
STANDARD LAYOUT

INTERMEDIATE STRUCTURES

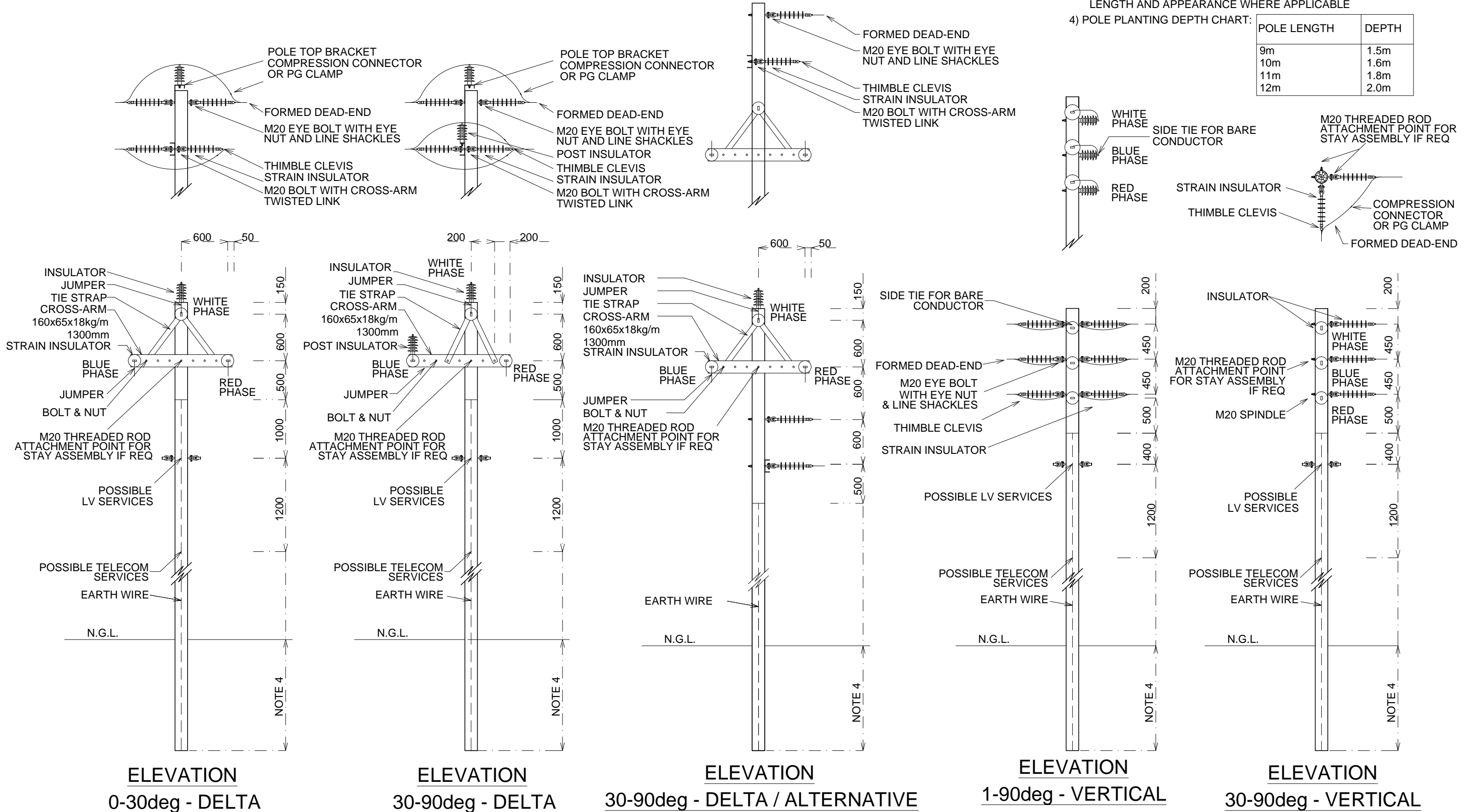
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REV	DESCRIPTION	DATE
EE/STD_100		REVISION
		A



INFORMATION

- NOTES :
- 1) ALL HOLES DRILLED ON SITE TO BE IMPREGNATED WITH SAME PRESERVATIVE AS USED ON THE POLE.
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  - 3) POLES TO BE MATCHED AND A PAIR SELECTED OF SIMILAR DIAMETER, LENGTH AND APPEARANCE WHERE APPLICABLE
  - 4) POLE PLANTING DEPTH CHART:

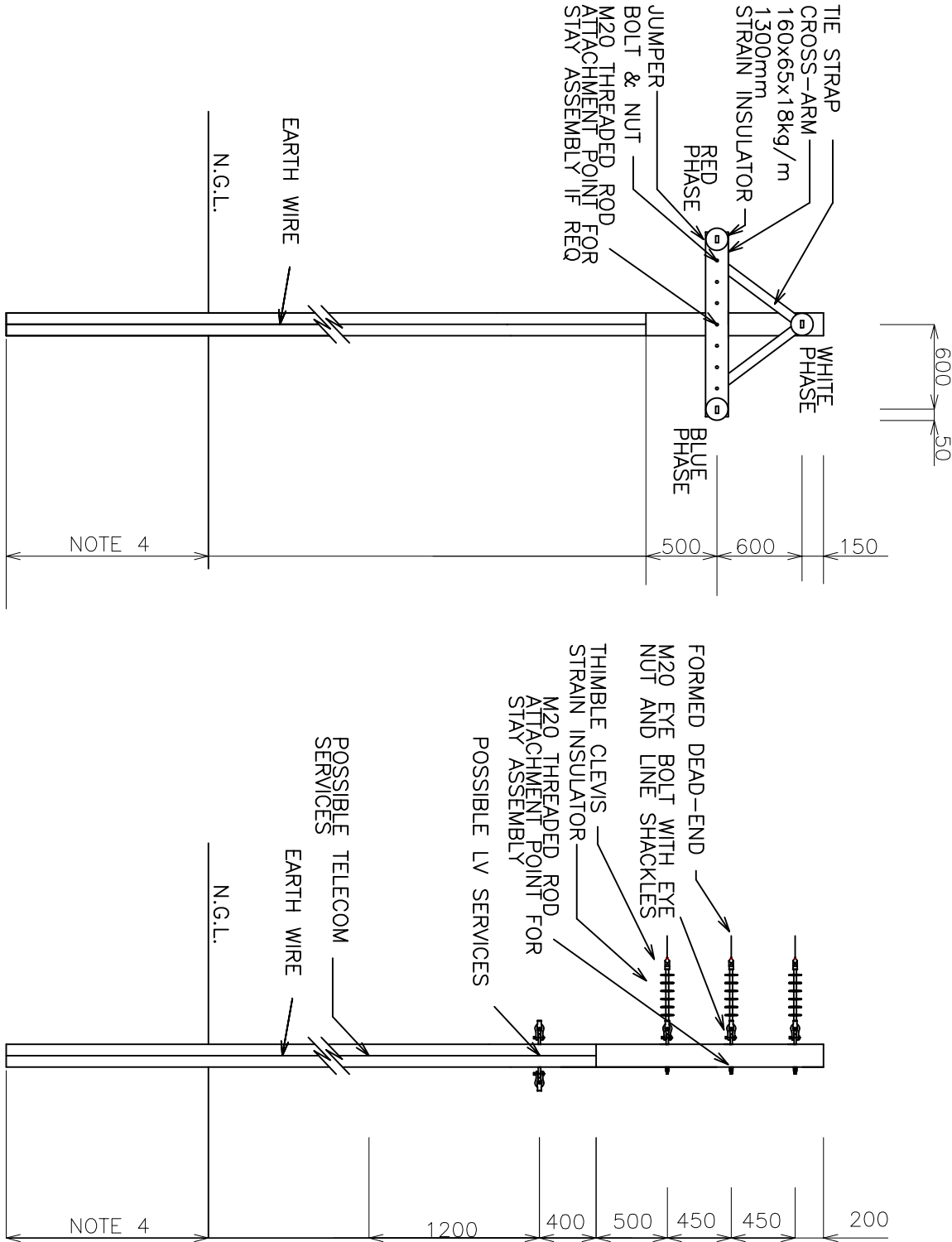
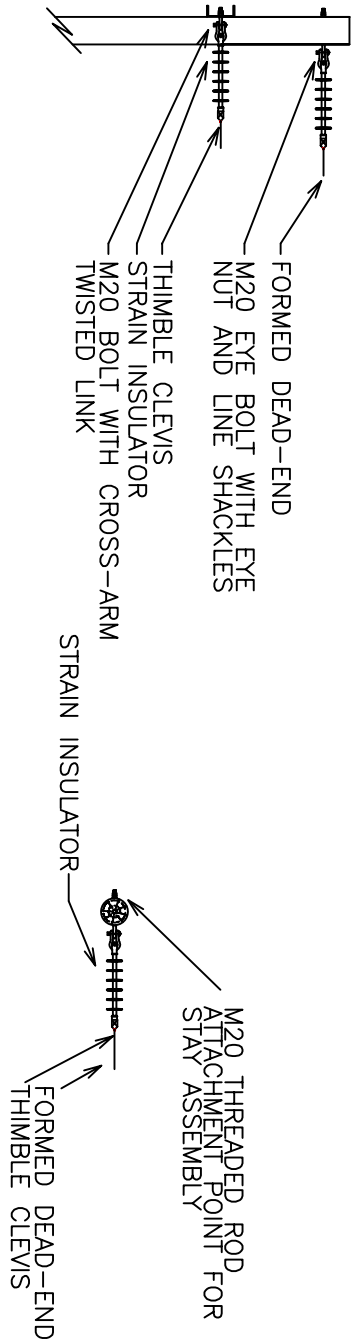
POLE LENGTH	DEPTH
9m	1.5m
10m	1.6m
11m	1.8m
12m	2.0m





- NOTES :
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  - 4) POLE PLANTING DEPTH CHART:

POLE LENGTH	DEPTH
9m	1.5m
10m	1.6m
11m	1.8m
12m	2.0m



ELEVATION

MV TERMINAL – DELTA

ELEVATION

MV TERMINAL – VERTICAL



ELECTRO STORM

Engineering Consultants

DRAWN BY

A. SIEBERHAGEN

DATE

31/08/2021

APPROVED

A. SIEBERHAGEN

SCALE

N.T.S

TITLE

STANDARD LAYOUT

TERMINAL STRUCTURES

A	INFORMATION	31/08/2020
REV	DESCRIPTION	DATE
EE/STD_102		REVISION
		A

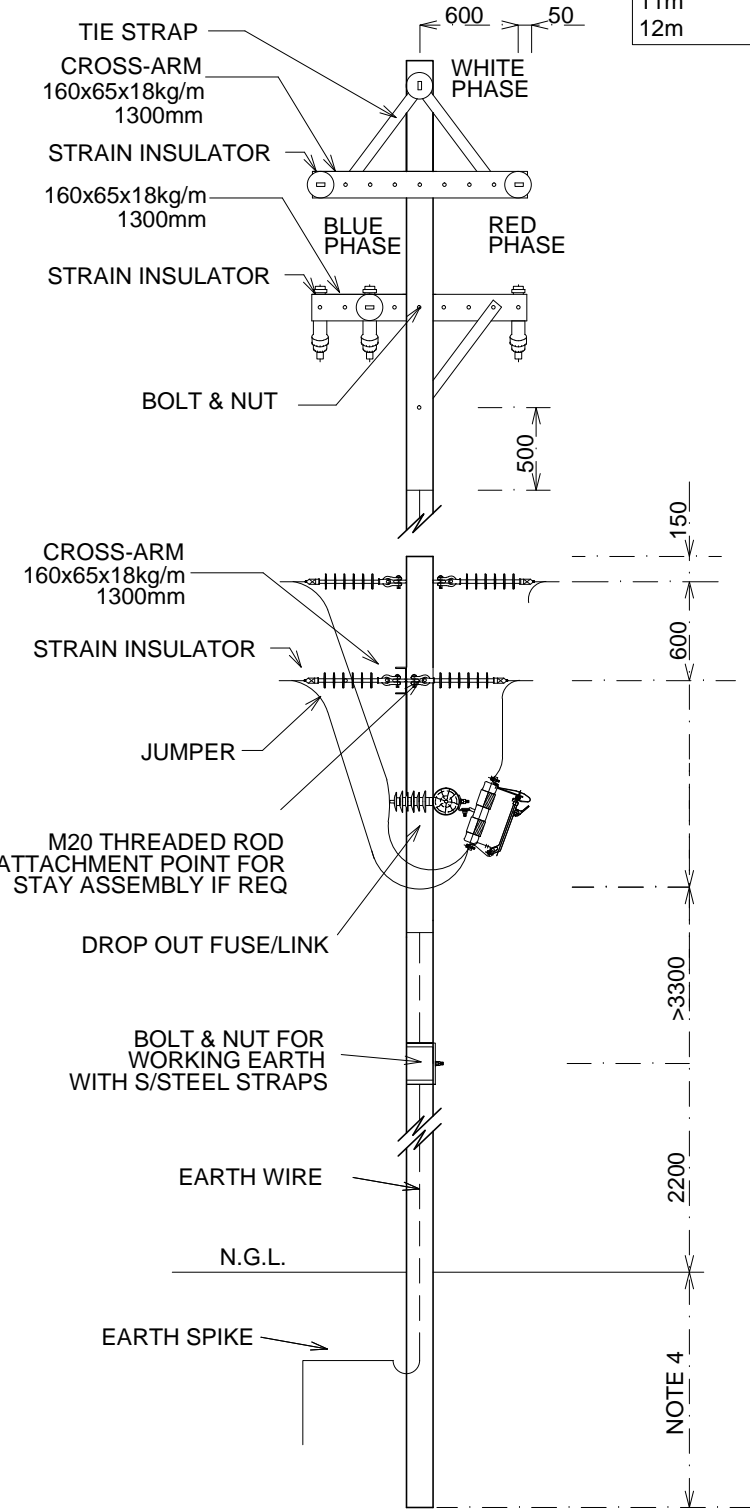


#### 4) POLE PLANTING DEPTH CHART:..



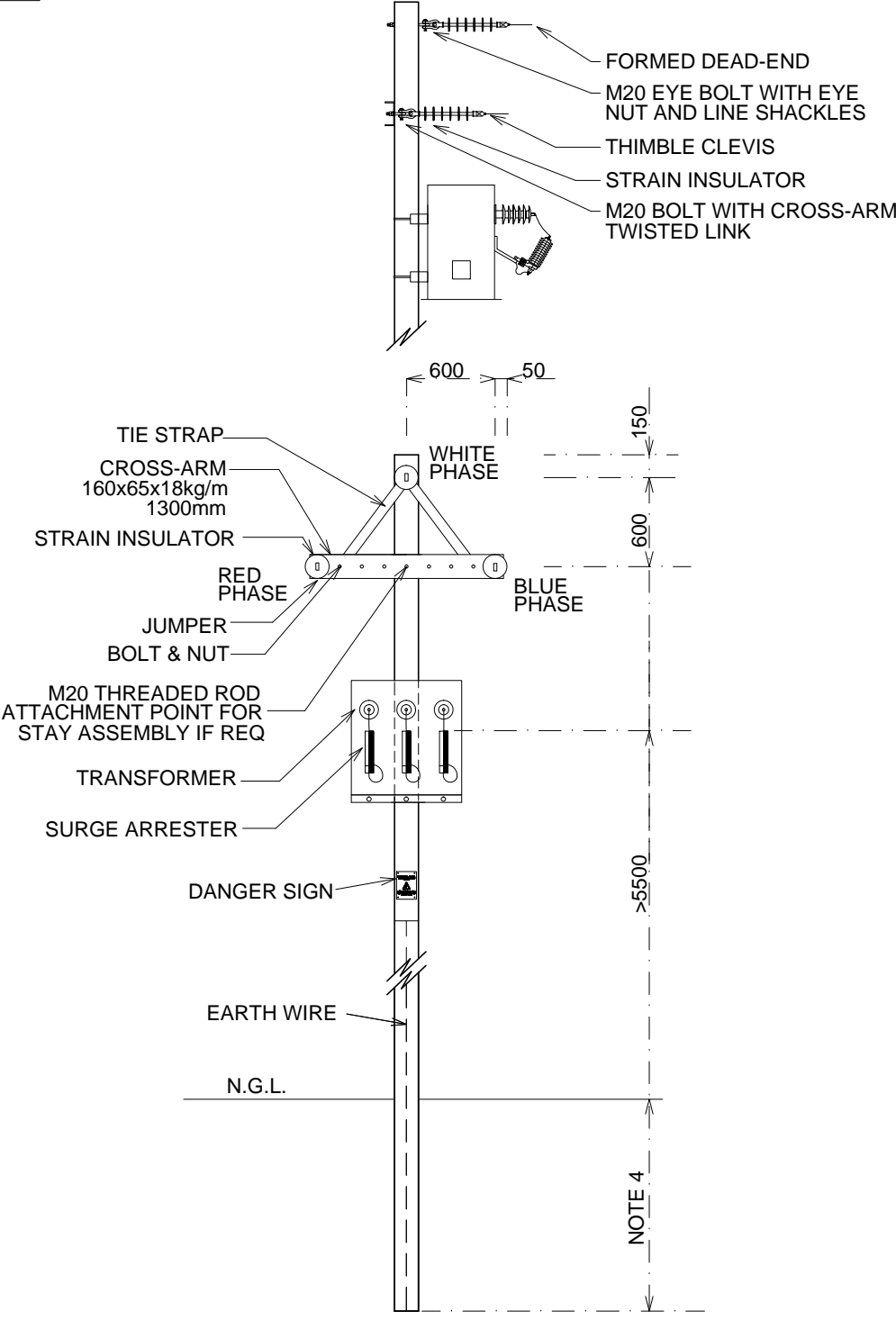
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10m	1.6m
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12m	2.0m



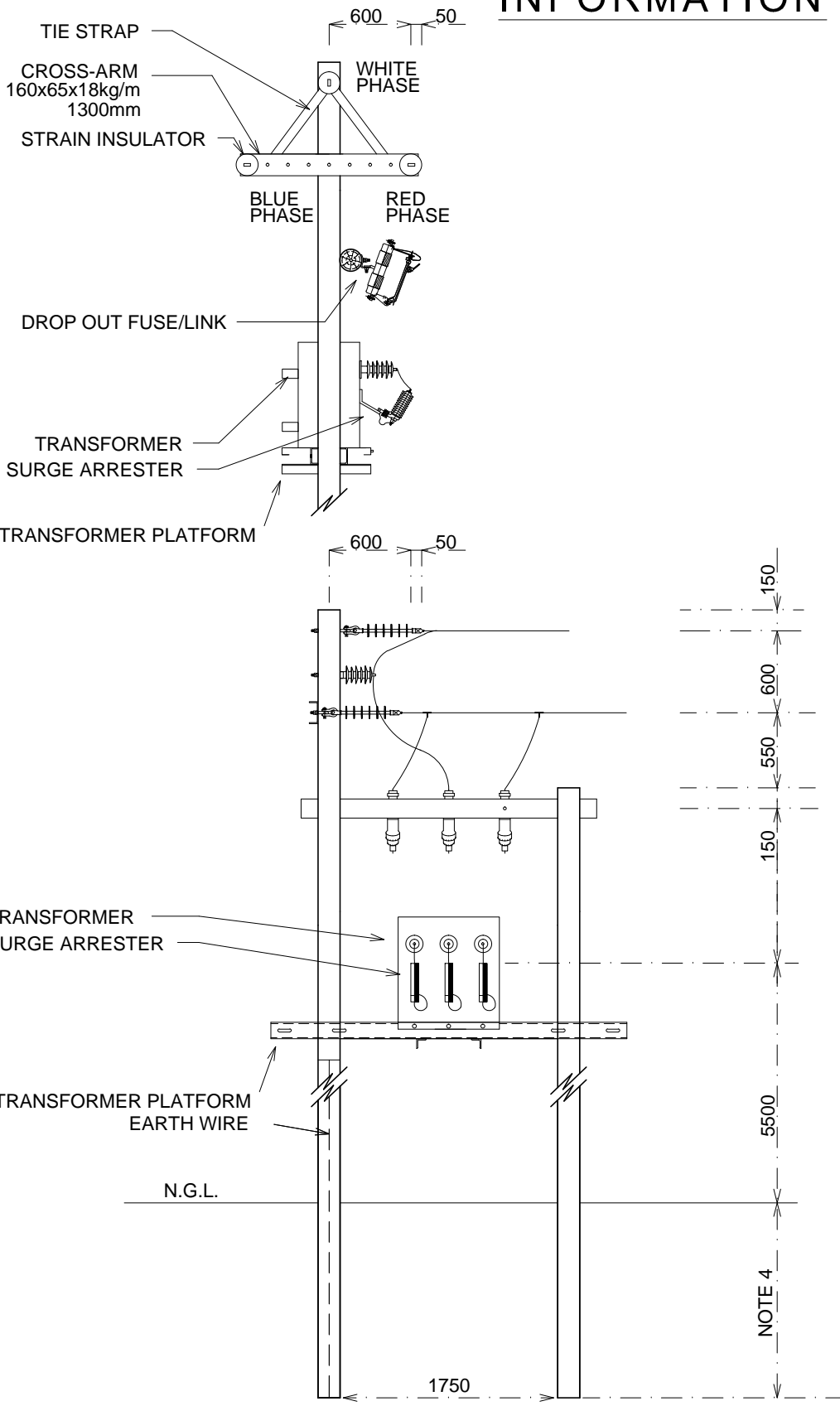
ELEVATION

IN-LINE ISOLATING STRAIN - DELTA



ELEVATION

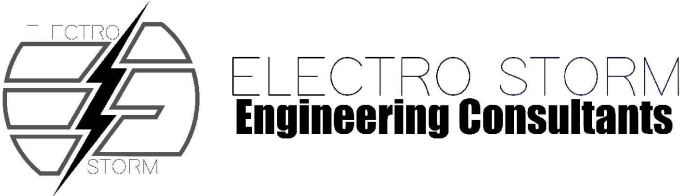
MV TRANSFORMER UP TO 100kVA - DELTA



ELEVATION

MV TRANSFORMER 200kVA - DELTA

INFORMATION



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Web: [www.eseconsult.co.za](http://www.eseconsult.co.za)

TITLE  
STANDARD LAYOUT

EQUIPMENT STRUCTURES

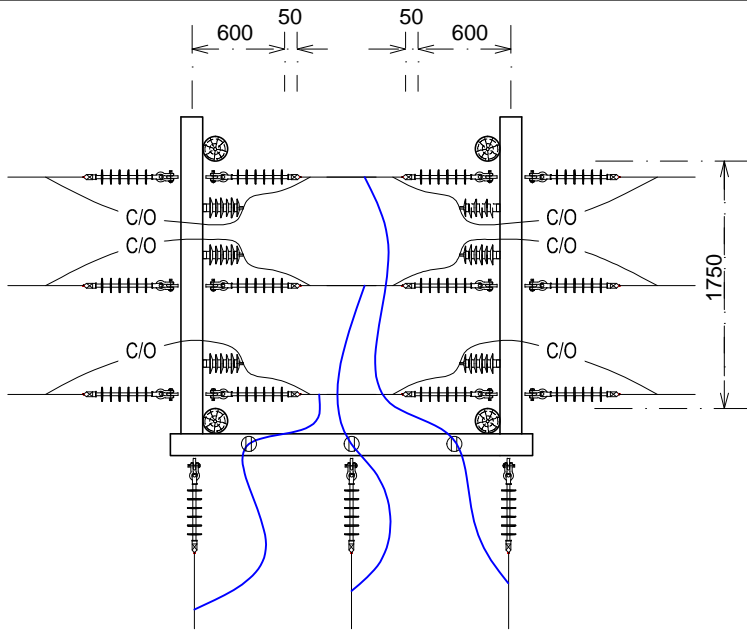
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REV	DESCRIPTION	DATE
EE/STD_104		REVISION
		A



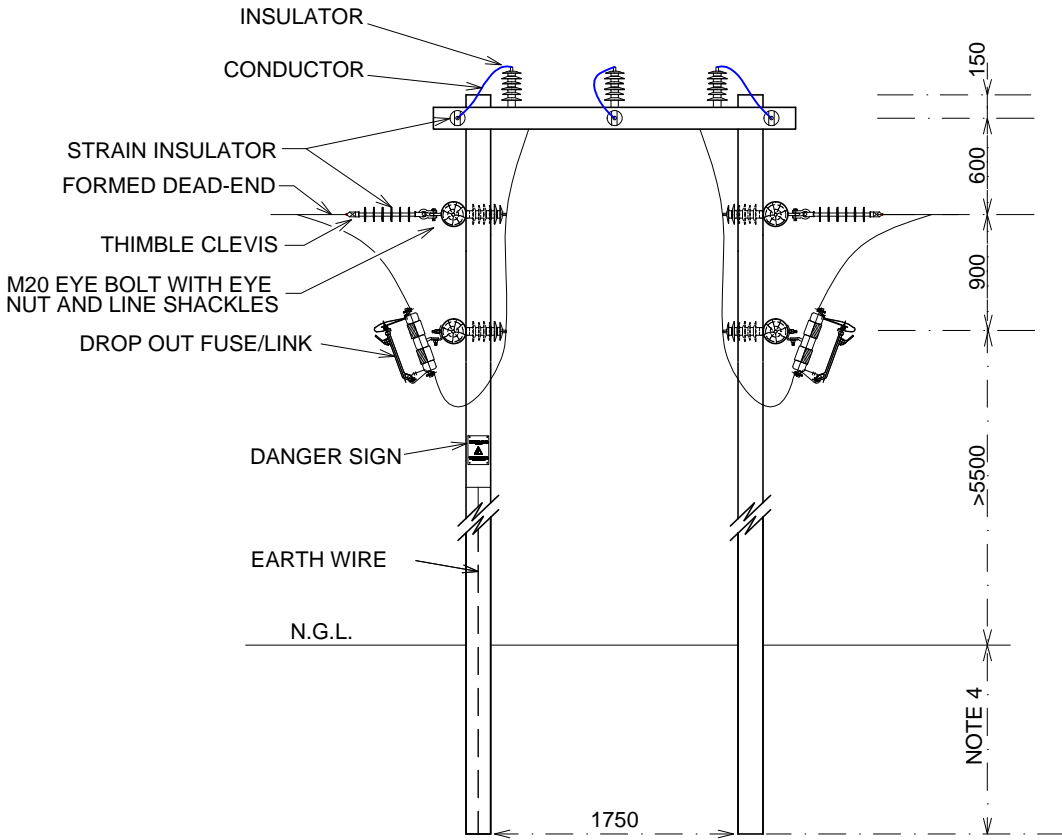
NOTES :

- 1) ALL HOLES DRILLED ON SITE TO BE IMPREGNATED WITH SAME PRESERVATIVE AS USED ON THE POLE.
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12m	2.0m

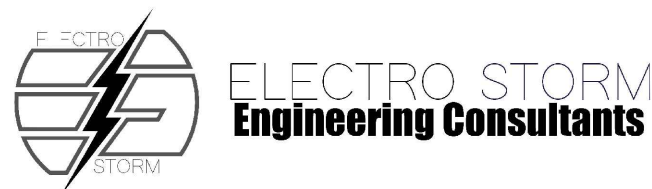


PLAN VIEW ON  
4-POLE T-INTERSECTION



ELEVATION  
4-POLE T-INTERSECTION

INFORMATION



DRAWN BY	A. SIEBERHAGEN
DATE	05/04/2022
APPROVED	A. SIEBERHAGEN
SCALE	N.T.S

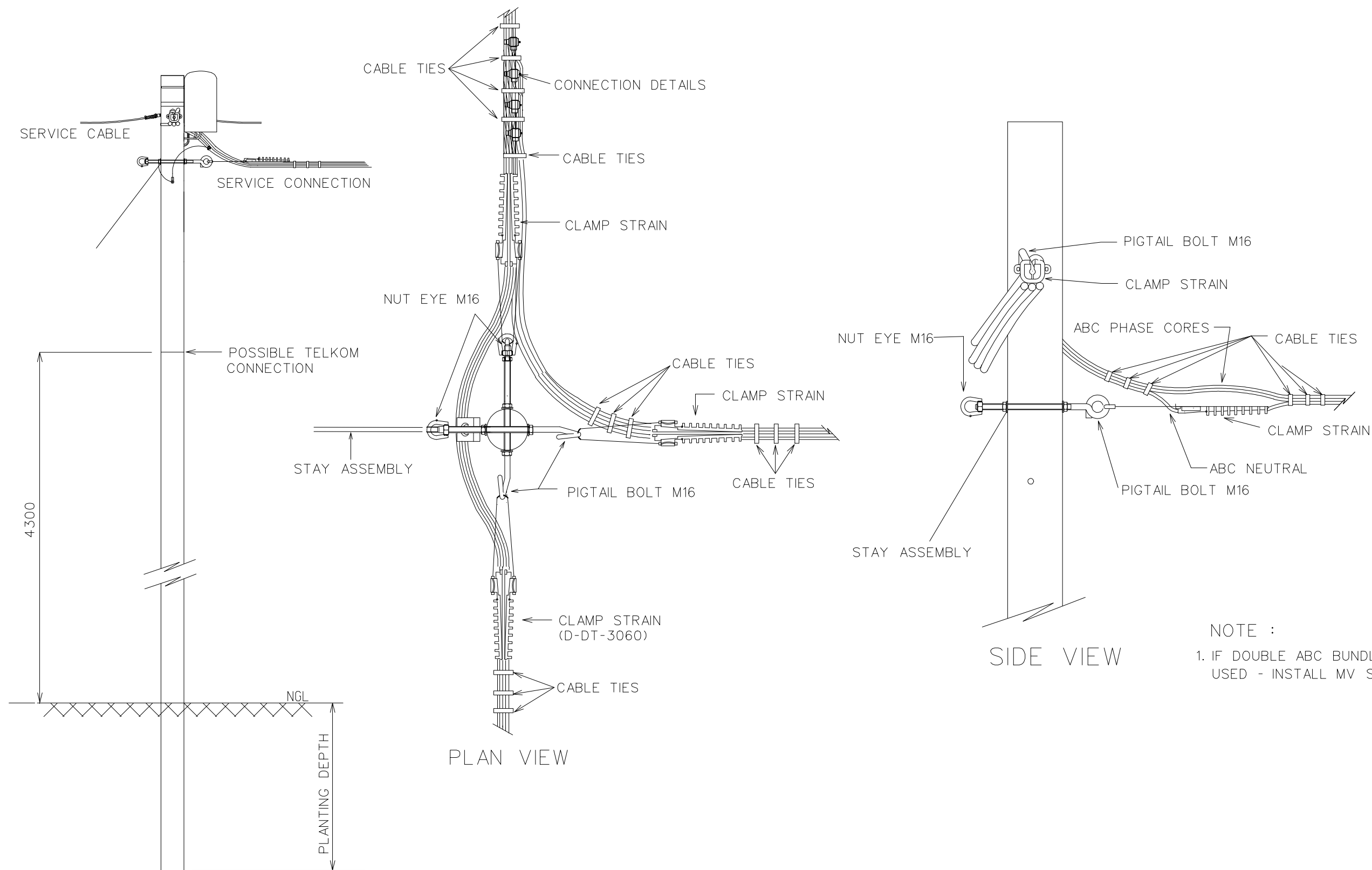
Tel: 087-160-0530  
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TITLE  
STANDARD LAYOUT

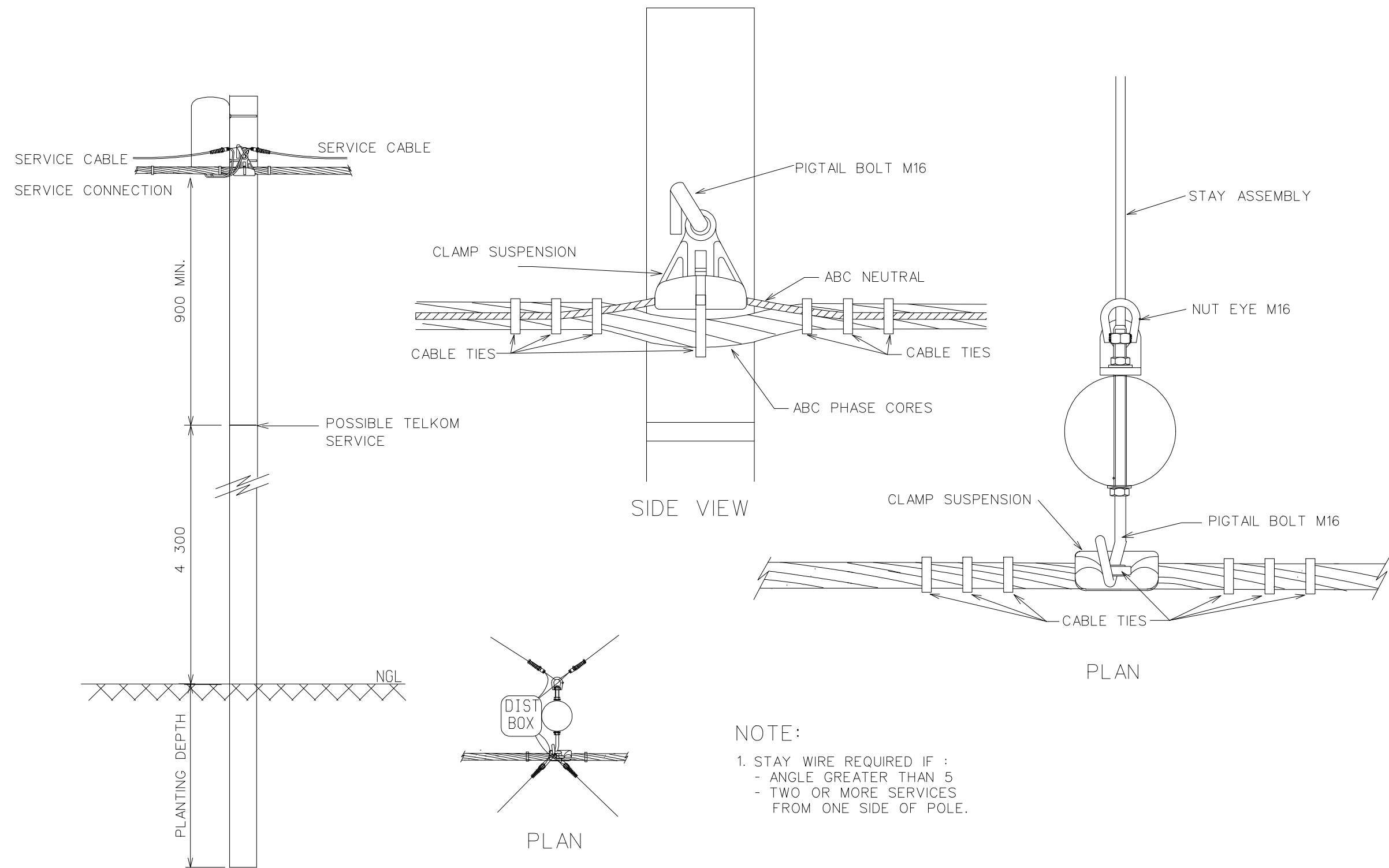
4-POLE T-INTERSECTION

A	INFORMATION	05/04/2022
REV	DESCRIPTION	DATE
EE/STD_105		REVISION
		A

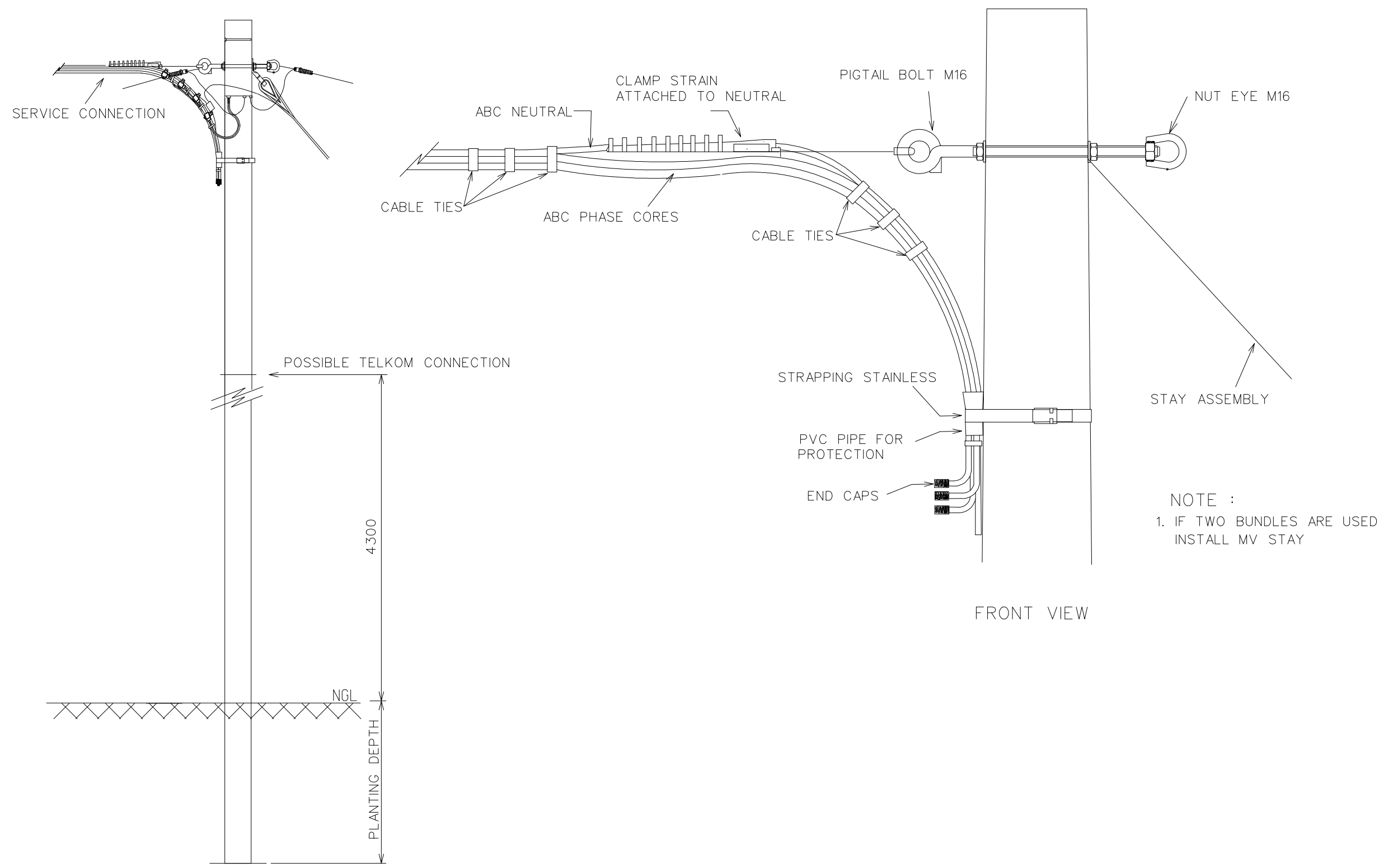


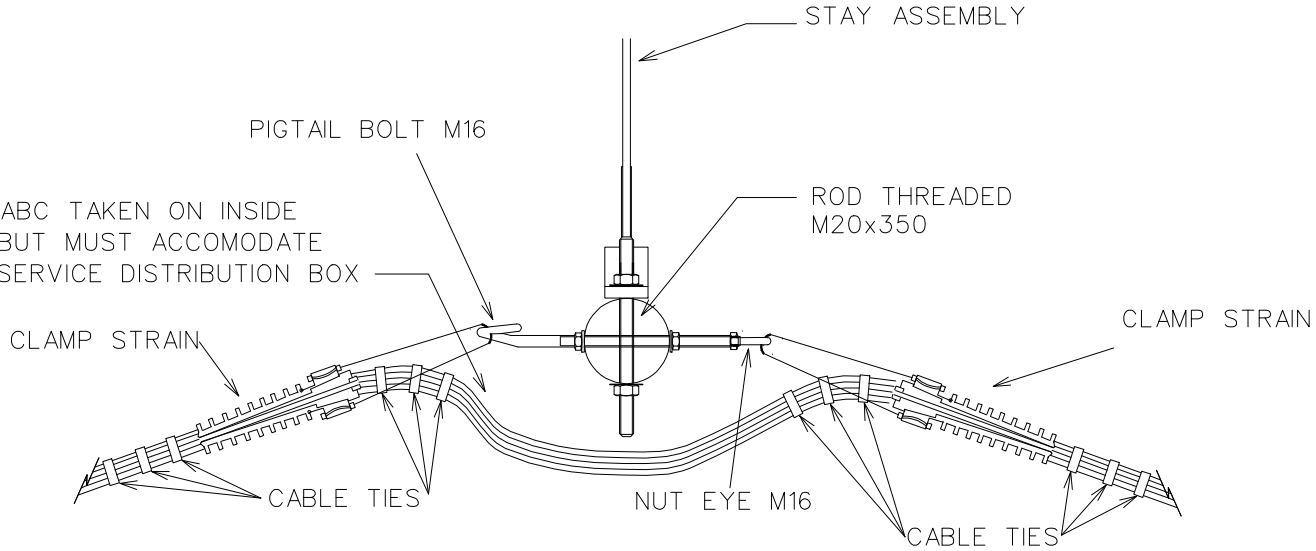
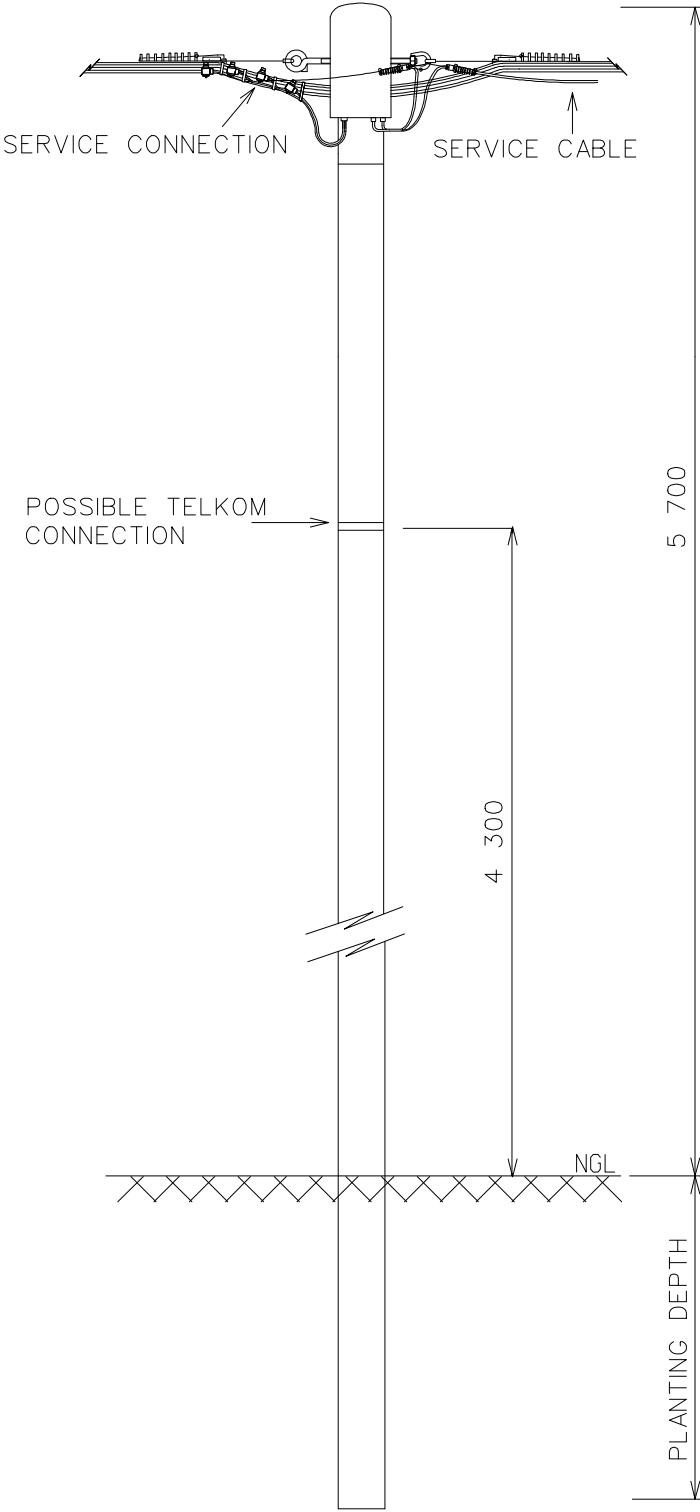




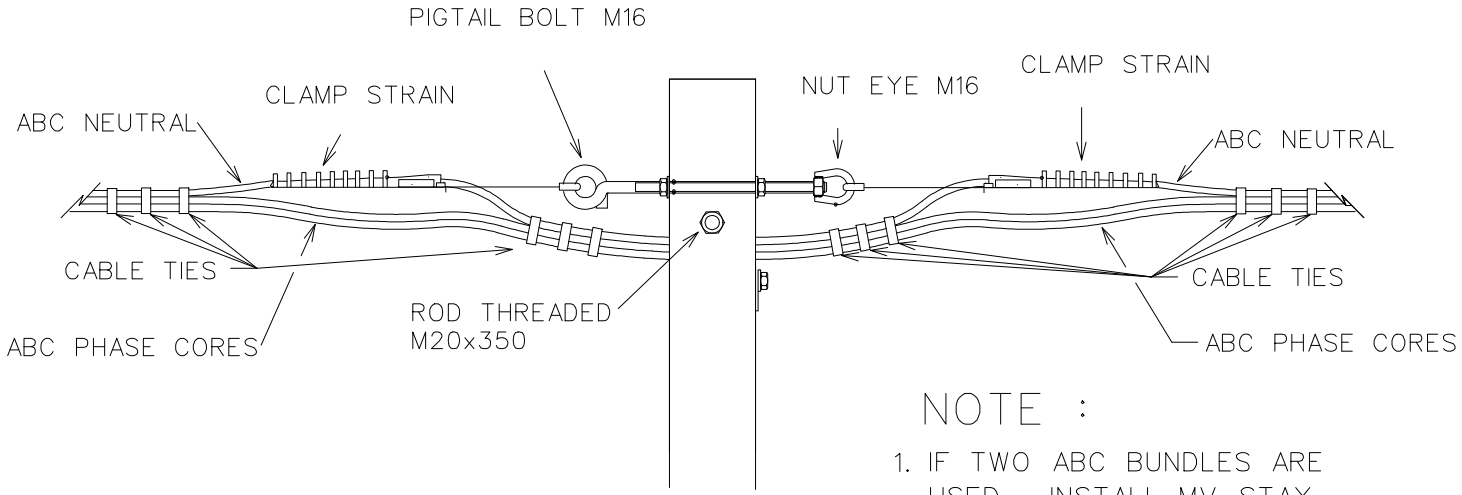








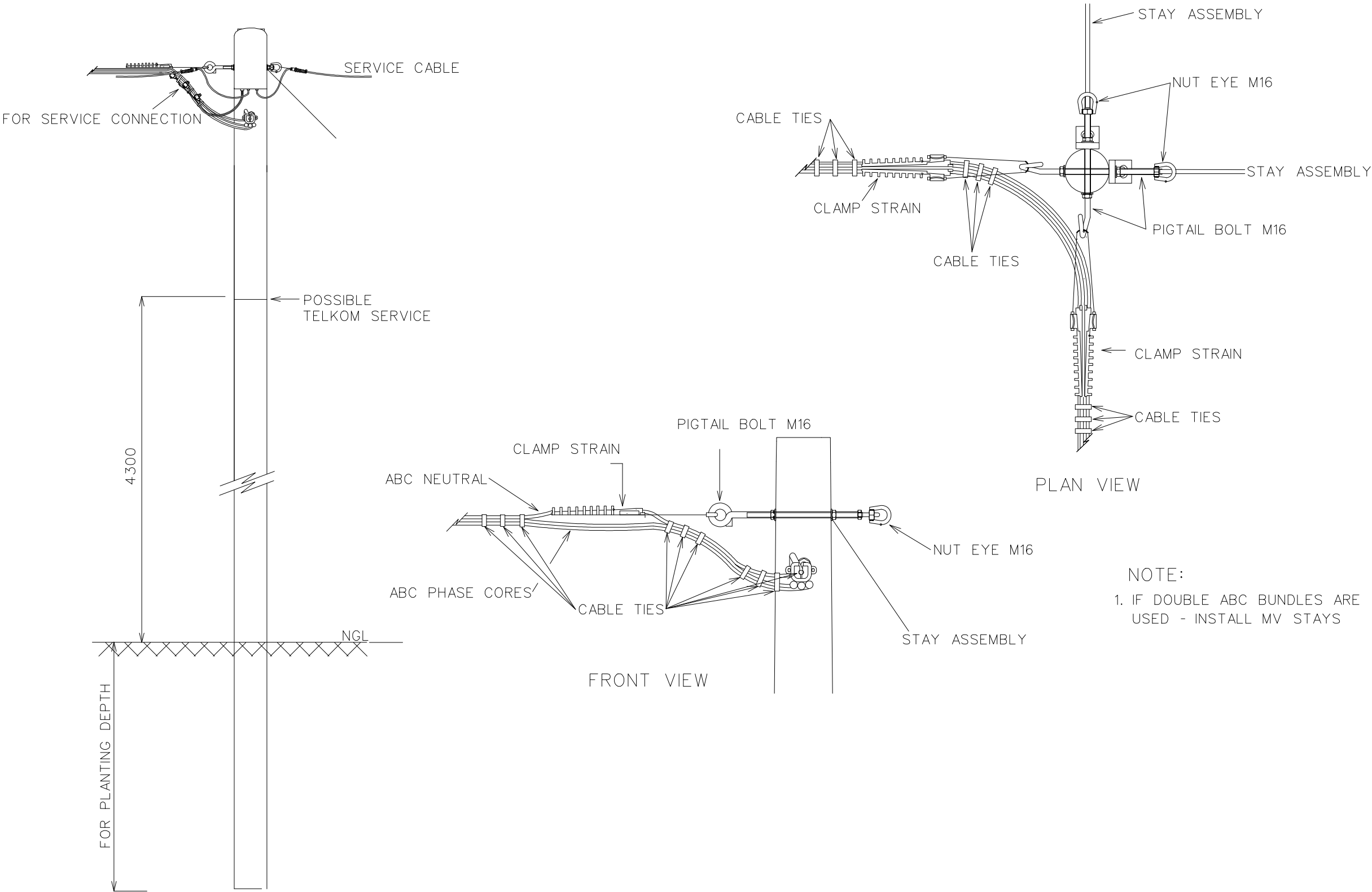
PLAN VIEW



NOTE :  
1. IF TWO ABC BUNDLES ARE USED - INSTALL MV STAY

FRONT VIEW





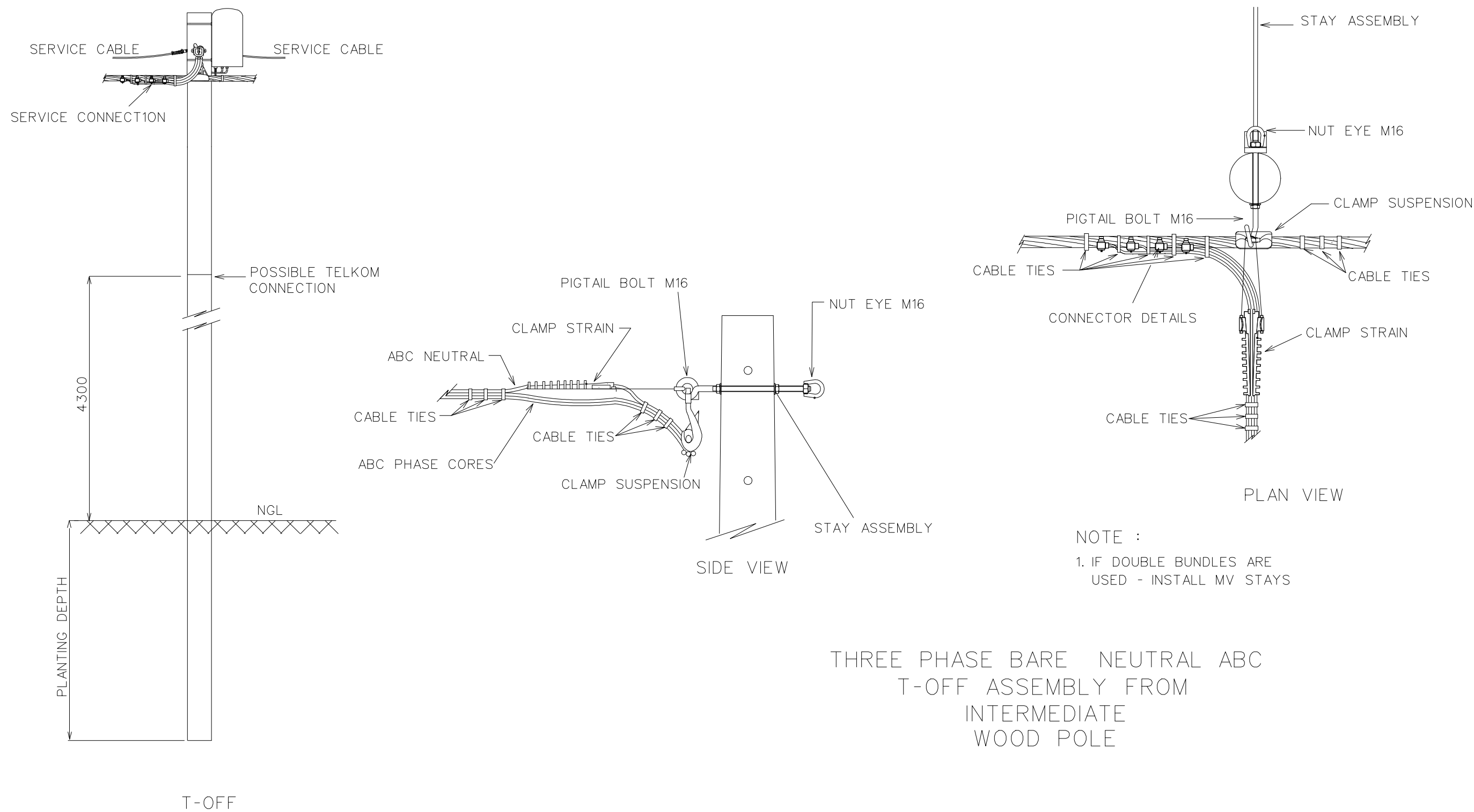
**ELECTRO STORM**  
**Engineering Consultants**

DRAWN BY	A. SIEBERHAGEN
DATE	05/04/2022
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SCALE	N.T.S

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Web: [www.esconsult.co.za](http://www.esconsult.co.za)

**TITLE**  
**STANDARD LAYOUT**  
**(LV RETICULATION)**  
**3 PHASE ABC BARE NEUTRAL**  
**STRAIN ASSEMBLY (60° - 90°)**  
**WOOD POLE**

A	INFORMATION	22/06/2022
REV	DESCRIPTION	DATE
EE/STD_110		REVISION
		A



THREE PHASE BARE NEUTRAL ABC  
T-OFF ASSEMBLY FROM  
INTERMEDIATE  
WOOD POLE