

# Distribution Construction Standard Handbook

**Maintenance Manual** 

**Part 09 (MM)** 



## **General Notes**

The Maintenance Manual (MM series) is a collection of drawings for superseded construction standards. These can be used where existing pole top assets are being reinstalled on a new pole (in accordance with an approved asset strategy). This will typically occur when poles with pole top assets attached are being changed as part of the pole replacement program.

The MM series can also be used on a 'like-for-like' basis to match the original pole top configuration where use of the current standard would compromise other aspects of the design.

For any other replacement activities, the current standard in the DCSH should be applied.

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## **Drawing Register**

Dwg. No.	Revision	Title				
MM01	В	TRANSFORMER REINSTALLATION				
MM01-H46	A	Intermediate Transformer with or without Dropout Fuse				
MM01-H47-1	A	Termination Transformer with or without Dropout Fuse				
MM02	В	POLE TOP SWITCH REINSTALLATION				
MM02-01	A	Pole Top Switch - Retaining Spring Installation				
MM02-02	A	Falcon 22kV Pole Top Switch Maintenance Spares				
MM02-R03	A	HV Insulator Ties Steel Conductor Non-Metallic Head Insulators				
MM02-R6-1	A	Pole Top Switch Earthing				
MM02-R6-2	В	Pole Top Switch Down Earth Repair for Vandalism/Copper Theft				
MM02-H12-1	A	22kV Pole top switch including Earth				
MM02-H12-2	В	22kV PTS for covered conductor - detail of parts required				
MM02-H14-1	A	Combination Switch & Fuse with Raiser (11 & 22kV) (Fly-over S)				
MM02-H14-2	A	Combination Switch & Fuse with Raiser (11 & 22kV)				
MM02-H14-3	A	PTS Fuses / Isolators Layout for 2 Cables				
MM02-H18	A	Termination Pole top Switch with Cable & Dropout Fuse				
MM02-H19	A	Termination Pole Top Switch with Cable Arrangement				
MM02-H20	A	Isolation Transformer				
MM02-H60-4	A	3Ф Recloser / Load Break Switch HV Bare – HV ABC/Hendrix With LV Aerial Supply				
MM02-H61-1	A	Pole Mounted 3Φ Recloser / Load Break Switch with By-pass Switch				
MM02-H61-2	A	Pole Mounted 3Φ Recloser / Load Break Switch with By-pass Switch (Aerial LV Supply)				
MM02-H62-1	A	3Φ Recloser / Load Break Switch on Termination PTS Pole Arrangement (22kV)				
MM02-H62-2	A	Combination PTS & Raiser with 3Φ Recloser / Load Break Switch (ABB 33kV PTS)				
MM03	В	RECLOSER REINSTALLATION				
MM03-H16-1	A	Pole Mounted Recloser with By-Pass Switch				
MM03-H17-1	В	Recloser on Termination PTS Pole Arrangement				
MM03-H17-4	A	Intermediate Tx (1 $\Phi$ ) 3 $\Phi$ inline cables/2x1 $\Phi$ spurs with/without Dropout Fuse				
MM03-H51-2	A	Single Phase Recloser In-Line Anti-Clash With 1Φ Tx Supply				
MM03-H51-4	A	1Ф Recloser By-Pass Isolators/Strain Termination With 1Ф ТХ Supply				
MM03-H62-1	A	3Ф Recloser / Load Break Switch on Termination PTS Pole Arrangemen				
MM03-H62-2	A	Combination PTS & Raiser with 3Φ Recloser / Load Break Switch				
MM03-H62-3	A	Intermediate Pole With 3 $\Phi$ Recloser / Load Break Switch and Cable				
MM03-H62-4	A	Termination Pole with 3Φ Recloser / Load Break Switch				



Dwg. No.	Revision	Title						
MM03-H63-1	A	1Ф Recloser/Load Break Switch In-Line Anti-Clash With 1Ф ТХ or LV Supply						
MM04	A	LOAD BREAK SWITCH REINSTALLATION						
MM04-H16-2	A	Pole Mount Load Break Switch with Bypass Switch & Antenna, Sht1 One Bushing, Sht2 Two Bushing						
MM04-H16-3	A	Pole Mount LBS In-Line Strain with TX Supply						
MM05	A	SECTIONALISER REINSTALLATION						
MM06	A	REGULATING TRANSFORMERS REINSTALLATION						
MM07	A	DROP OUT FUSE REINSTALLATION						
MM08	A	CAPACITORS REINSTALLATION						
MM09	A	GENERAL OVERHEAD LINE MAINTENANCE						
MM09-1-1	A	Pole Top Construction						
MM09-1-2	A	Pole Top Construction						
MM09-1-3	A	Pole Top Construction						
MM09-1-4	A	Pole Top Construction						
MM09-2-1	A	Pole Top Checks/Splits Repair with Band-it Straps						
MM09-2-2	A	Pole Top Checks/Splits Repair with Band-it Straps						
MM09-3-1	С	General Overhead Line HV spreader 46Kv Silicone Interphase						
MM09-5	A	Enhanced Foundation Details In-situ Distribution Pole						
MM09-H40-1	С	Extended Raiser for Single Phase HV on 9m Pole						
MM09-LV-01	В	Vertical LV intermediate/angle/termination construction						
MM09-R09	В	HV Cable Termination Retrospective Earth Parking Stud Install						
MM09-R24	В	Mechanical Tension Repair Splice (MTRS)						
MM10	С	BELOW GROUND SERVICES						
MM10-R31	A	Mini Pillar Neutral (Extra) Fitting Requirement						
MM10-U08-3	A	Mini Pillar 480V Wiring Arrangement						
MM10-EXT	A	Mini & Uni Pillar - Cable Extension Guide						
MM11	A	SECURITY LIGHTING INSTALLATION						
MM11-S13	A	Mounting Arrangement for Steel Streetlight Columns						
MM11-S14	A	Mounting Arrangement for Wood or Concrete Pole On Bare Aerial Connection						
MM11-S15	A	Mounting Arrangement for Wood or Concrete Pole ABC Connection						
MM11-S16	A	Steel Column - Double Insulated (Class 2)						
MM11-S17	A	Wood or Concrete Pole Double Insulated - (Class 2)						
MM11-S18	A	Wood or Concrete Pole Single Insulated - (Class 1)						
MM13	A	Streetlight Maintenance						
MM13-01	A	Legacy Streetlight Cable Repair						



Dwg. No.	Revision	Title			
MM13-02	В	Electrical Connections for Narrow Style Streetlight column			
MM13-03	A	Legacy Streetlight Column with Concrete Foundation			
MM13-04	A	Paint Sylvania Suburban Lens Cover to Function as Front Glare Shield			
MM13-R26-1	A	Streetlight Cut-out Single Phase Supply for Single Insulated (Class 1) Luminaires - 1			
MM13-R26-2	A	Streetlight Cut-out Single Phase Supply for Single Insulated Equipment			
MM13-R26-3 A		Streetlight Cut-out Single Phase Supply for Double Insulated (Class 1) Luminaires - 2			
MM13-R26-4 A		Avenue Streetlights Luminaire Installation			
MM13-R26-5	С	Streetlight (LED) Wiring Installation Standard (Part 1)			
MM13-S02-1 A		Legacy Minor Road – Short Streetlight Bracket on wood Pole and Crossarm with new LED			



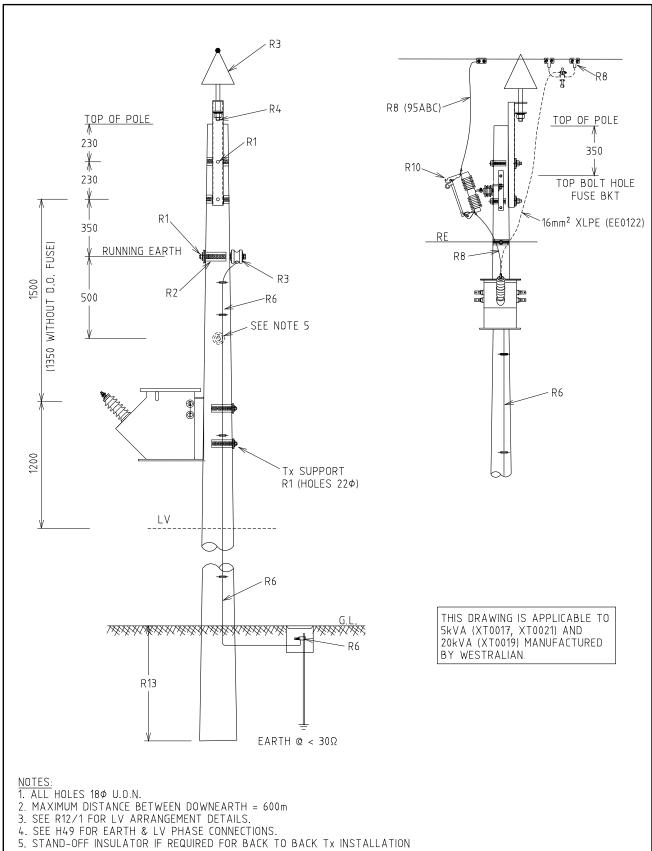
STOCK CODE	DESCRIPTION	RELEVANT DRAWINGS
XT0016	WESTRALIAN, 3Φ, 200KVA	H10-1, H10-2, H11-1, H11-2
XT0017	WESTRALIAN, 1Φ, 5KVA	
XT0019	WESTRALIAN, 1Φ, 20KVA	MM01-H46, MM01-H47-1
XT0021	WESTRALIAN, 1Φ, 5KVA	

## NOTES:-

- 1. ITEM FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS) BEFORE ATTACHMENT TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).
- 2. APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION.
- 3. SURGE ARRESTERS DO NOT NEED TO BE INSTALLED IF THERE ARE NO APPROPRIATE MOUNTING POINTS ON THE TANK.
- 4. LV BUSHING LINK PLATES (GF1510) MAY BE REPLACED WITH 95mm<sup>2</sup>LV ABC OR 25mm<sup>2</sup> COPPER TAP, WITH APPROPRIATE LUGS, ON SINGLE PHASE TRANSFORMERS.
- 5. EARTH STUD ON TRANSFORMER TANKS MAY BE EXTENDED USING A COPPER PLATE (GF1592) IF STUD THREAD LENGTH TOO SHORT FOR ATTACHMENT OF NEUTRAL TO EARTH LINK & DOWNEARTH LUGS.

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1								DRAWN: JRR DATE: 29-06-2016 DRU. NO.	
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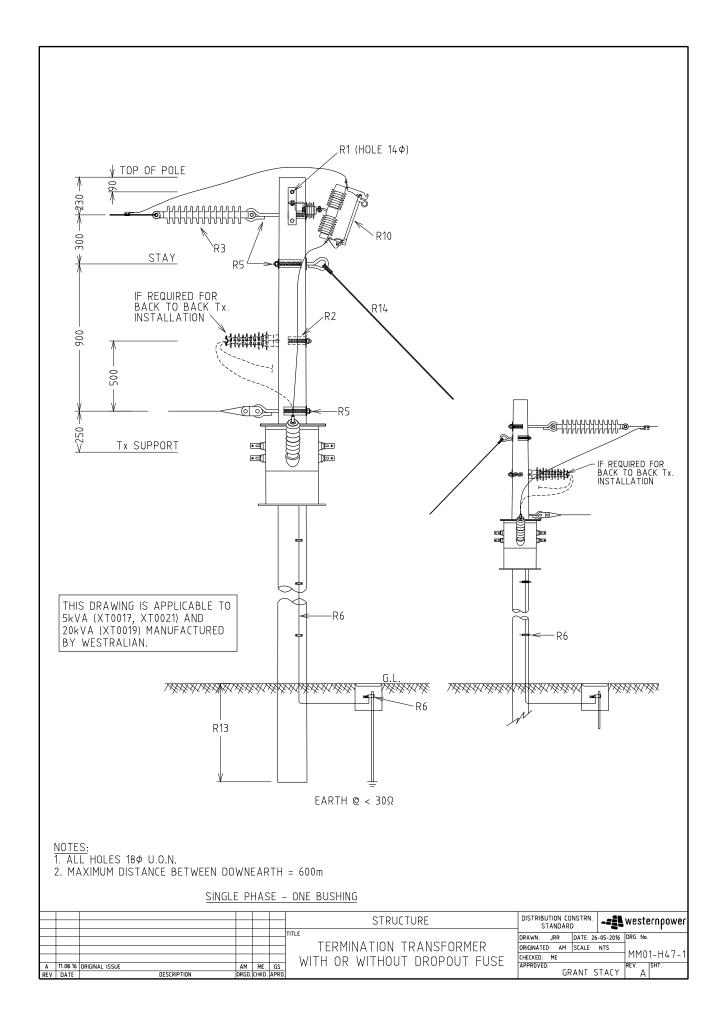




## SINGLE PHASE - ONE BUSHING

						STRUCTURE	DISTRIBUTION CONSTRN. STANDARD	vesternpower
			H			TITLE INTERMEDIATE TRANSFORMER	DRAWN: JRR DATE: 26-05-2016 DR	RG. No.
						WITH OR WITHOUT DROBOUT FUCE	ORIGINATED AM SCALE NTS	MM01-H46
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STOCK CODE	DESCRIPTION	RELEVANT DRAWINGS
GS0115	22kV PTS	H12, H14-2, H14-3

FLEX TAIL DOUBLE	BOLT CONVERSION
STOCK CODE	QUANTITY
GZ0036	3
GZ0045	3
CB3056	3
CT0020	2 (IE DEOLIDED)
CT0021	3 (IF REQUIRED)
S/S NUTS, BOLTS AND WASHERS	AS REQUIRED

- NOTES:

  1. ITEM FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS)
  BEFORE ATTACHMENT TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).

  2. APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION.

  3. FLEX TAIL CONNECTION MUST BE DOUBLE BOLTED AND FITTED WITH BRAID SPRINGS.
- REFER TO MM02-01.

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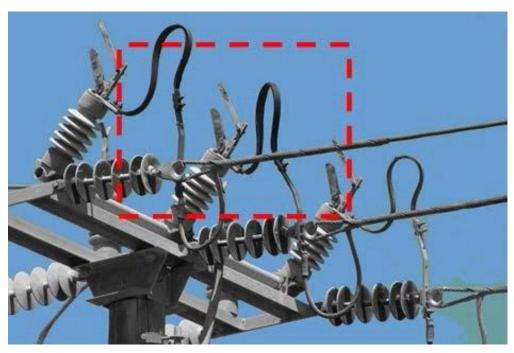


FIGURE 1

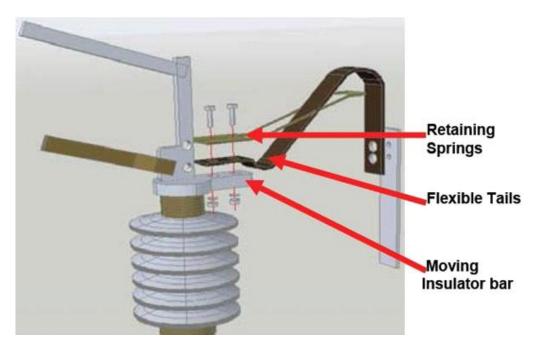


FIGURE 2

- NOTES:

  1. OLD POLE TOP SWITCHES REQUIRE THE INSTALLATION OF A SPRING (STOCK CODE CB 3056), AS SHOWN IN FIGURES 1 (SWITCH THAT REQUIRES RETAINING SPRINGS) AND FIGURE 2 (RETAINING SPRING ASSEMBLY).

  THE SPRING IS A STANDARD FITTING ON ALL NEW POLE TOP SWITCHES.

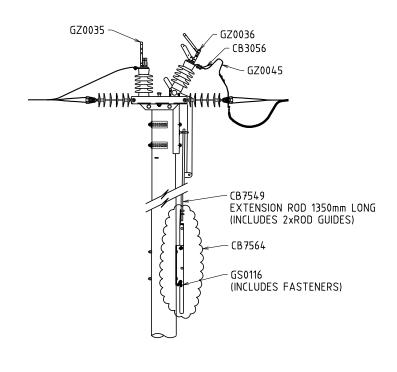
  2. USE A WIRE BRUSH TO CLEAN THE SURFACE OF THE FLEXI-TAILS AND THE MOVING INSULATOR BAR TO ENABLE A GOOD ELECTRICAL CONTACT.

  3. FIT THE RETAINING SPRING TO THE TOP OF THE FLEXI-TAILS AT THE BOLTED CONNECTION OF THE MOVING INSULATOR BAR (SEE FIGURE 2 (RETAINING SPRING ASSEMBLY)).

							DISTRIBUTION CO STANDAR	INSTRN. D	-= <u>{</u> }	westernpower
						POLE TOP SWITCH		DATE: 24 SCALE		DRG. No. MM02-01
A REV	24.08.17 DATE	ORIGINAL ISSUE  DESCRIPTION	JB ORGD.	CHKD.	GS APRD		APPROVED:	RANT S	STACY	REV. SHT.

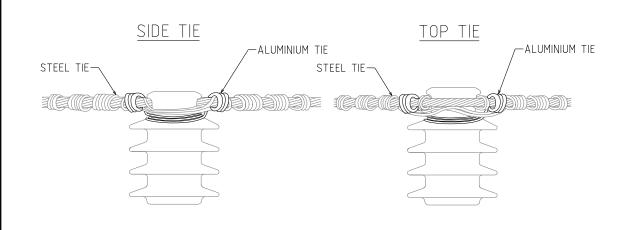


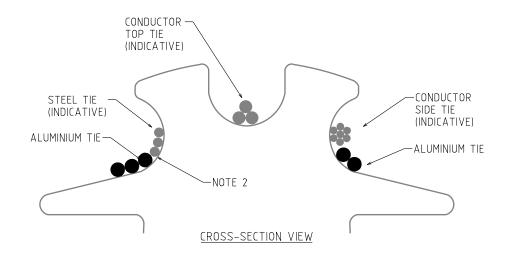
STOCK CODE	DESCRIPTION	COMMENTS
		COTTILITIES
CB3056	POLE TOP SWITCH BRAID SPRING	SPRING TO PREVENT BRAID FROM COLLAPSING
CB7549	PTS ROD EXTENSION KIT	ACTUATING ROD EXTENSION FOR 12.5m POLES INCLUDING 2xROD GUIDES
GS0116	TINNED COPPER BRAID WIRE, LUGGED AT BOTH ENDS, 320mm LONG	PTS HANDLE BONDING BRAID
GZ0035	CONTACT ASSEMBLY, W/CLAMP TERM, POLE-TOP SWITCH 11kV & 22kV, FEMALE	PTS FEMALE CONTACT ASSEMBLY COMPLETE
GZ0036	CONTACT ASSEMBLY, W/CLAMP TERM, POLE-TOP SWITCH 11kV & 22kV, MALE	PTS MALE CONTACT ASSEMBLY COMPLETE.
GZ0045	FLEXIBLE COPPER BRAIDS FOR POLE TOP SWITCHES, 2 HOLE TYPE	BRAID FOR POLE TOP SWITCH MOVING CONTACT SIDE.
CB7564	PTS HANDLE ASSEMBLY COMPLETE (NO DOWN ROD)	ENTIRE PTS HANDLE ASSEMBLY



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A REV	15.05.18 DATE	ORIGINAL ISSUE DESCRIPTION	REE ORGD.	FK CHKD	GS APR		GRANT STAC	Y A SHT







## SEQUENCE OF OPERATIONS

- USING STEEL TIE:

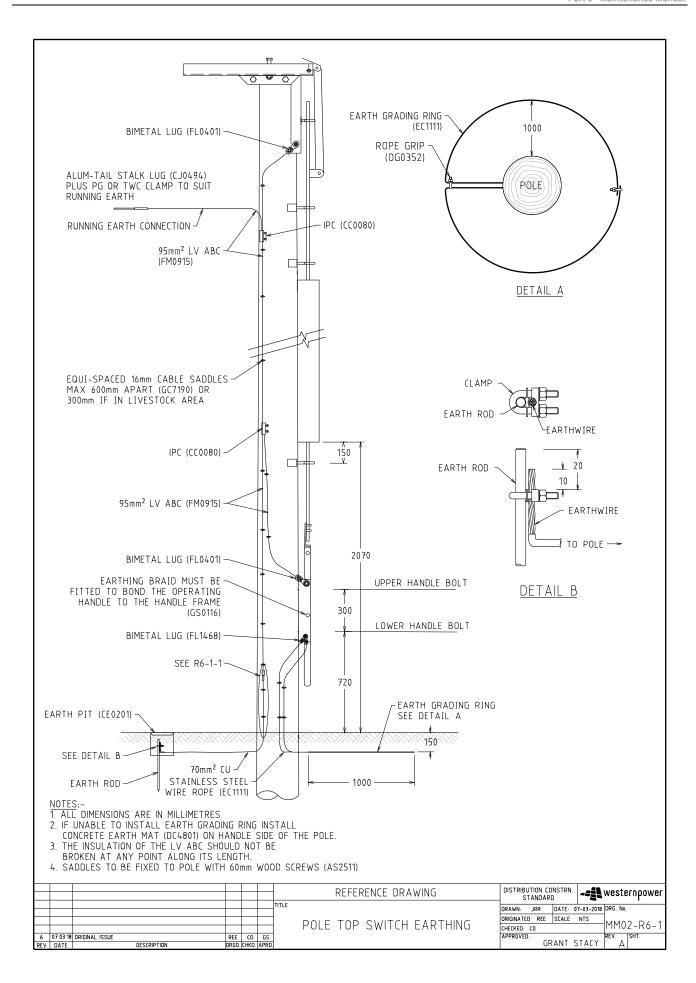
  A) SECURE CONDUCTOR TO INSULATOR AS PER R03-2
- USING <u>ALUMINIUM TIE</u>:
- B) WRAP THREE TURNS OVER THE STEEL TIE ON ONE SIDE OF THE INSULATOR HEAD.
- C) WRAP TIE TWO AND HALF TURNS AROUND THE INSULATOR SURFACE BELOW THE STEEL TIE, FLAT AS SHOWN.
- D) COMPLETE THE WRAP WITH THREE TURNS AROUND THE STEEL TIE ON THE OTHER SIDE OF THE INSULATOR
- E) TRIM EXCESS TIE.

### NOTES:

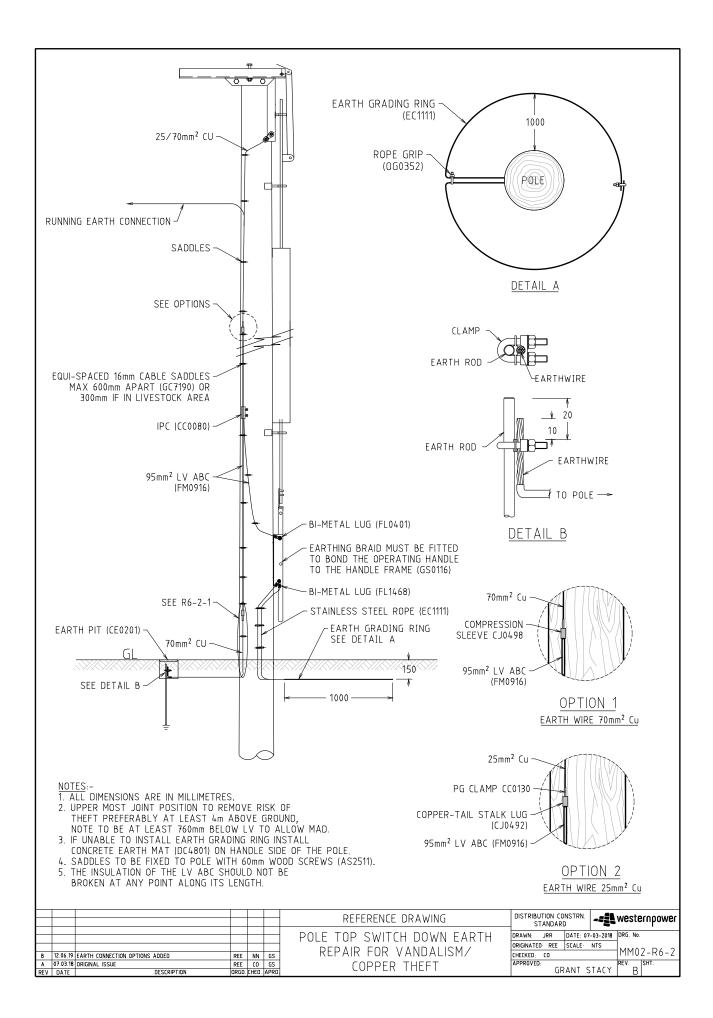
- 1. NON-METALIC HEAD INSULATORS TYPES ARE:
  - ALL PORCELAIN POST & PIN
  - ALL CYCLO-ALIPHATIC / GREY RESIN (IC0072 & IC0073)
- 2. ALUMINIUM TIE STRANDS TO:
  - BE TIGHTLY WRAPPED FLAT AGAINST THE INSULATOR TOP SHED SURFACE.
  - NO OVERLAPPING
- 3. ALUMINIUM TIE FORMS AN "ARCING RING", PROTECTING THE GALVANISING COATING ON THE STEEL TIE.

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						TITLE LIV INICIAL A TOD TICO	DRAWN: NC DATE: 28	B-03-2025 DRG. No.
						""" HV INSULATOR TIES		
						STEEL CONDUCTOR	ORIGINATED VS SCALE	MM02-R03
			<u> </u>			3 TELE COMBOCION	CHECKED: NMc	
Α	28.03 25	ORIGINAL ISSUE	٧s	NMc	CO	NON-METALIC HEAD INSULATORS	APPROVED:	REV. SHT.
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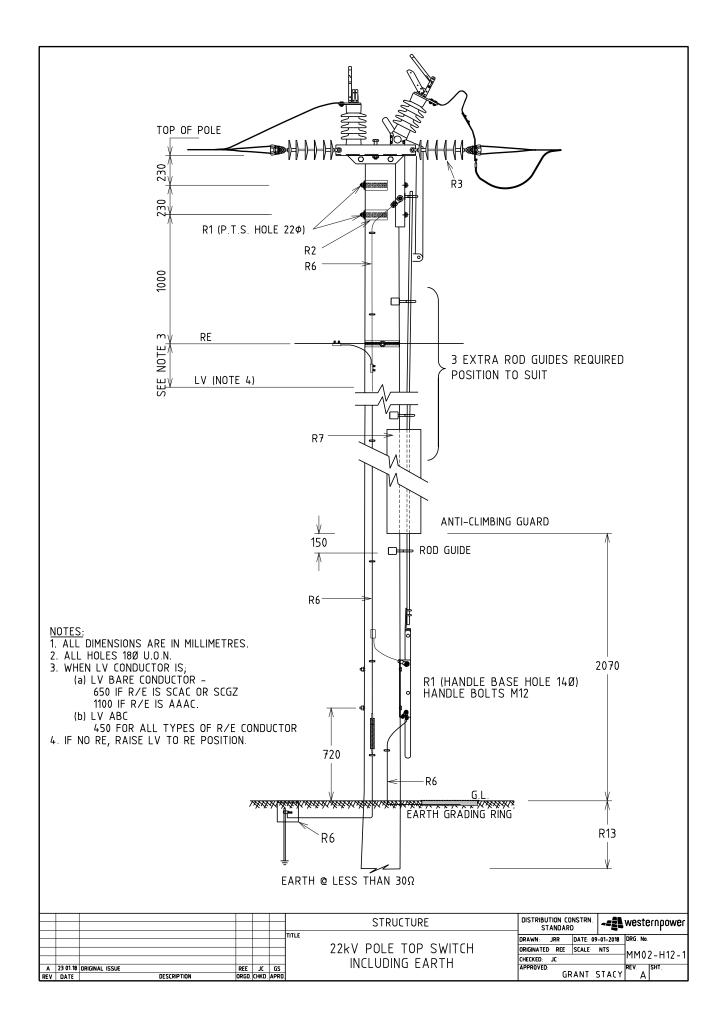




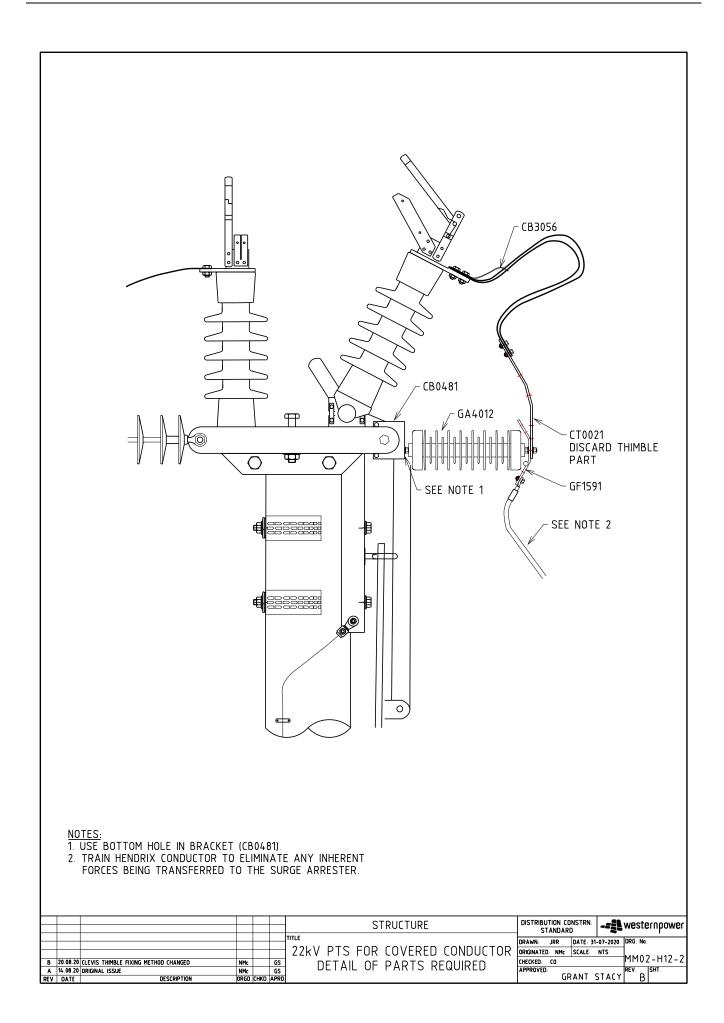




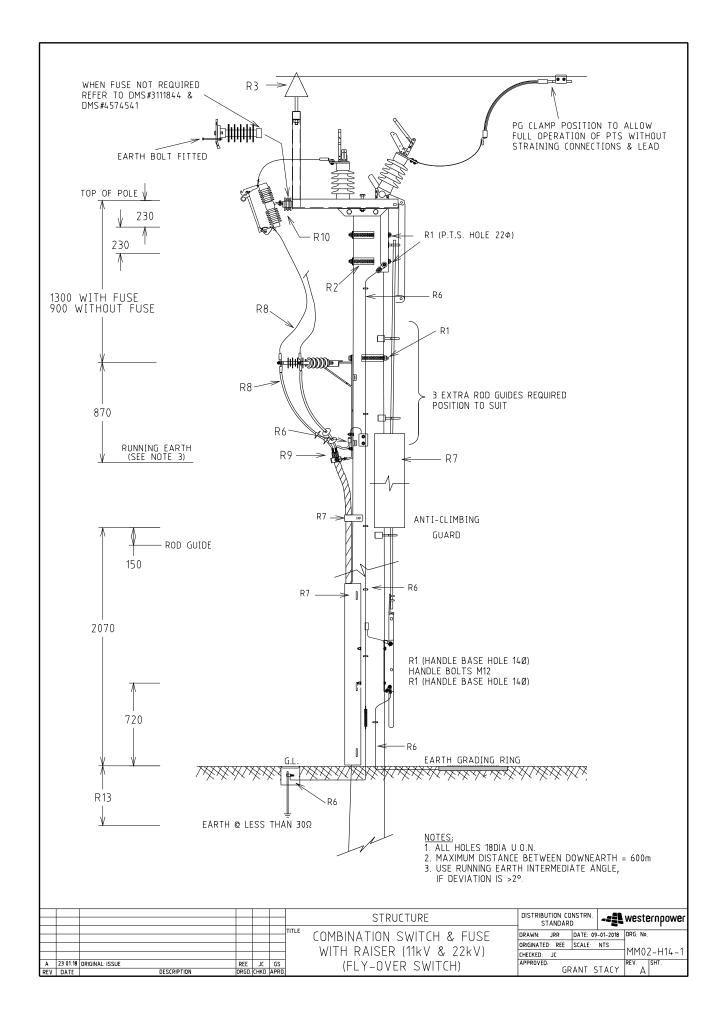


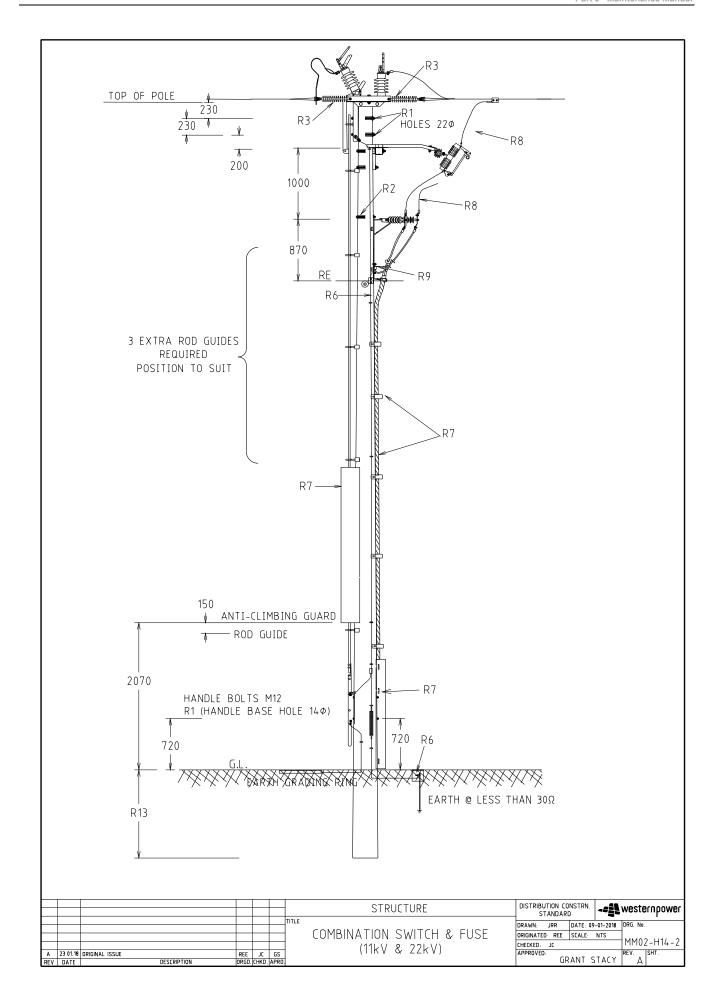




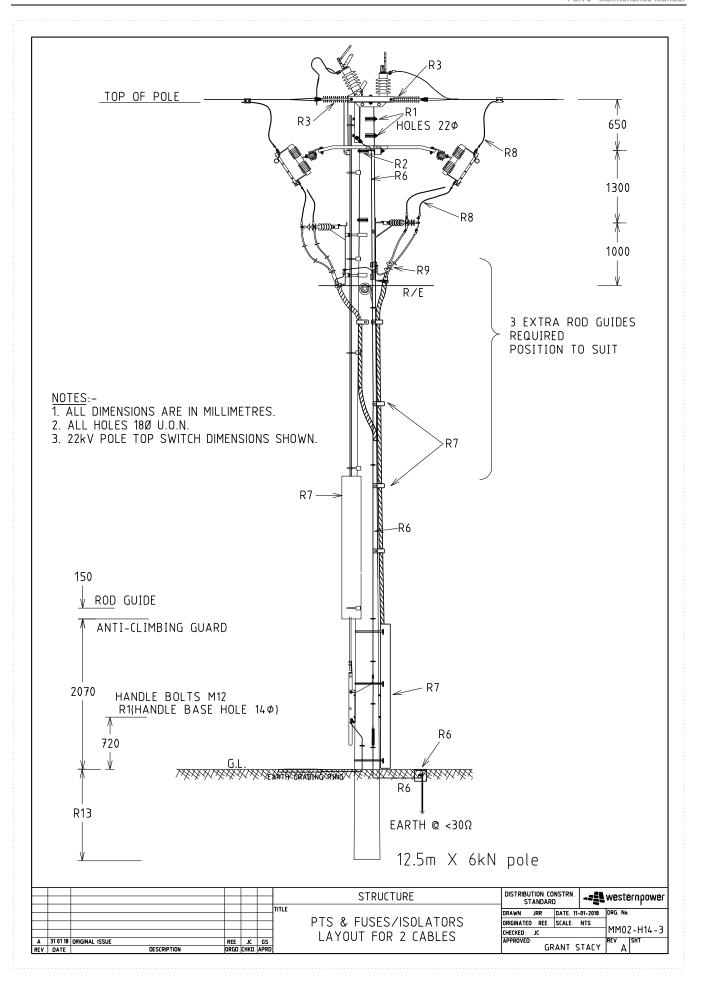


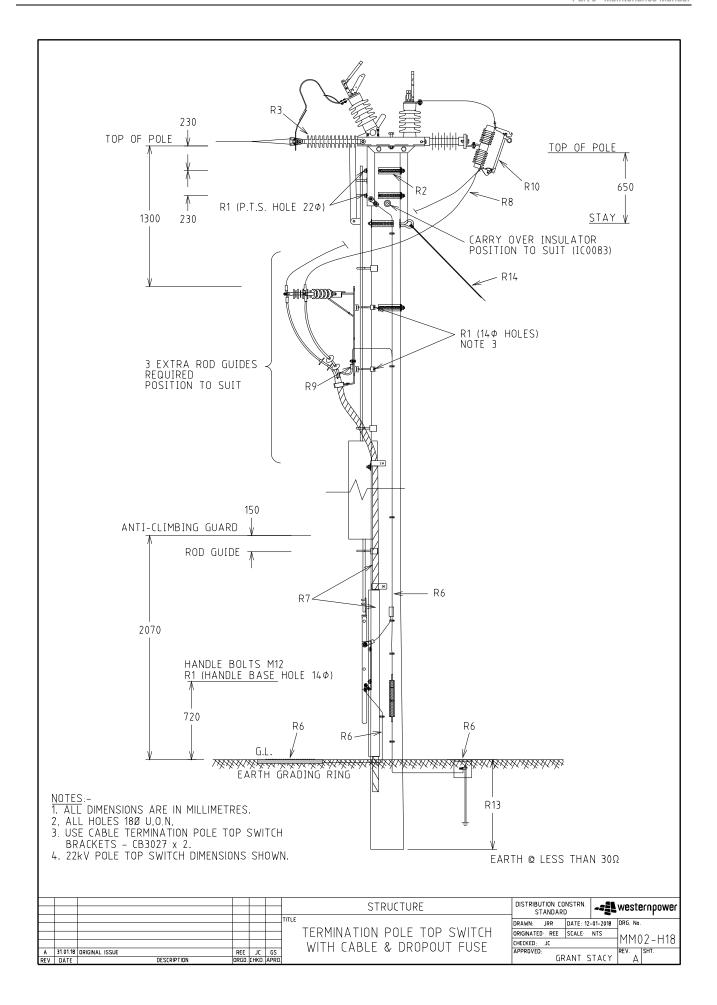


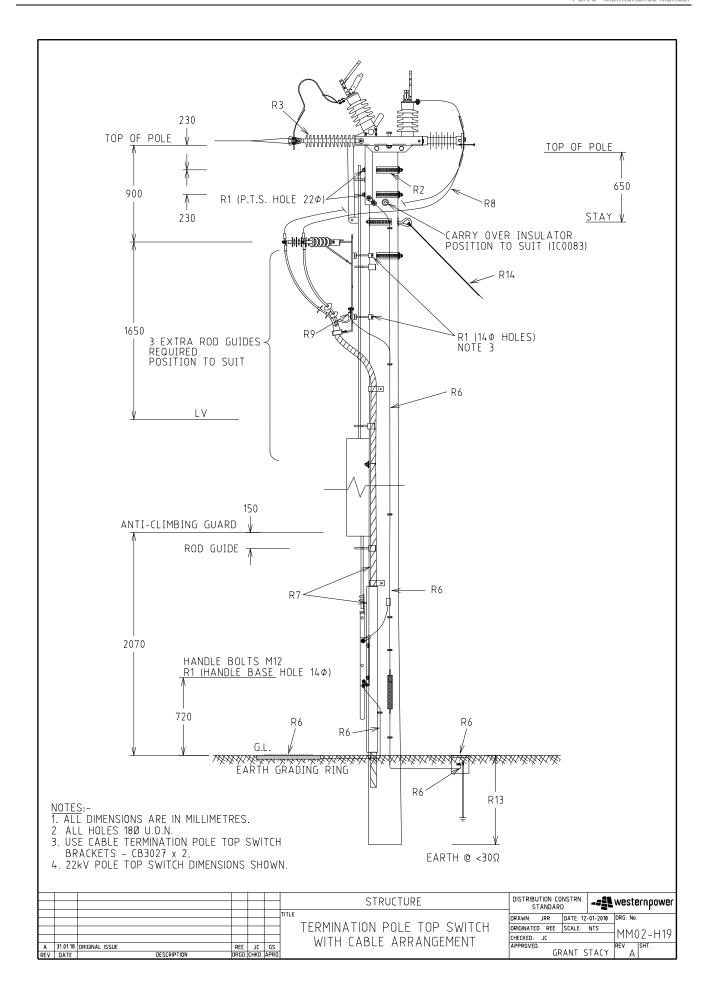


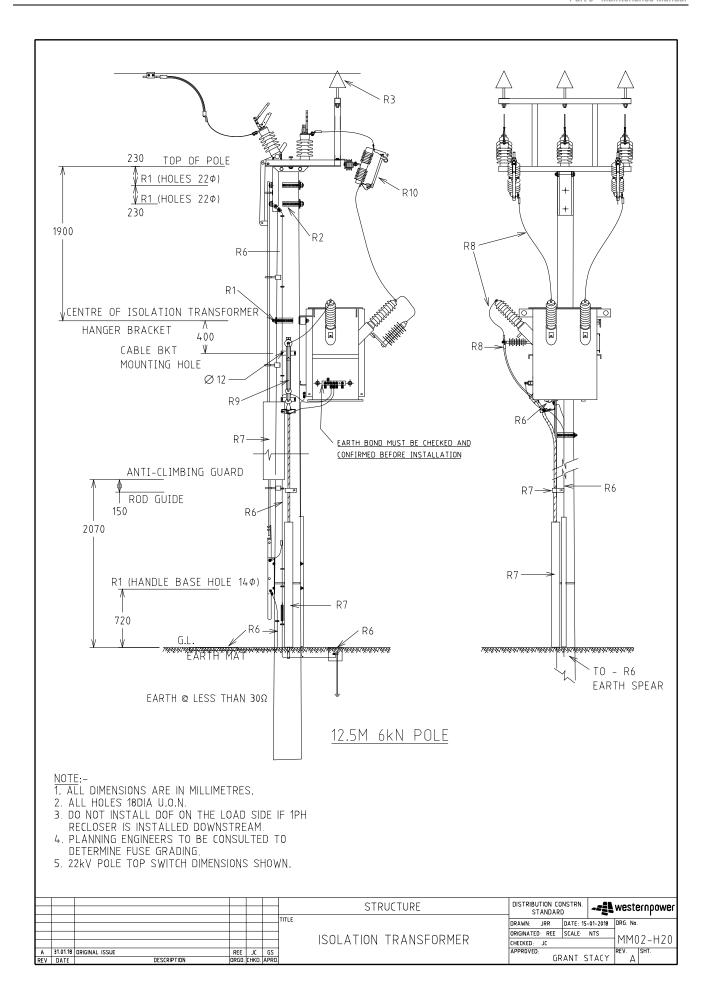




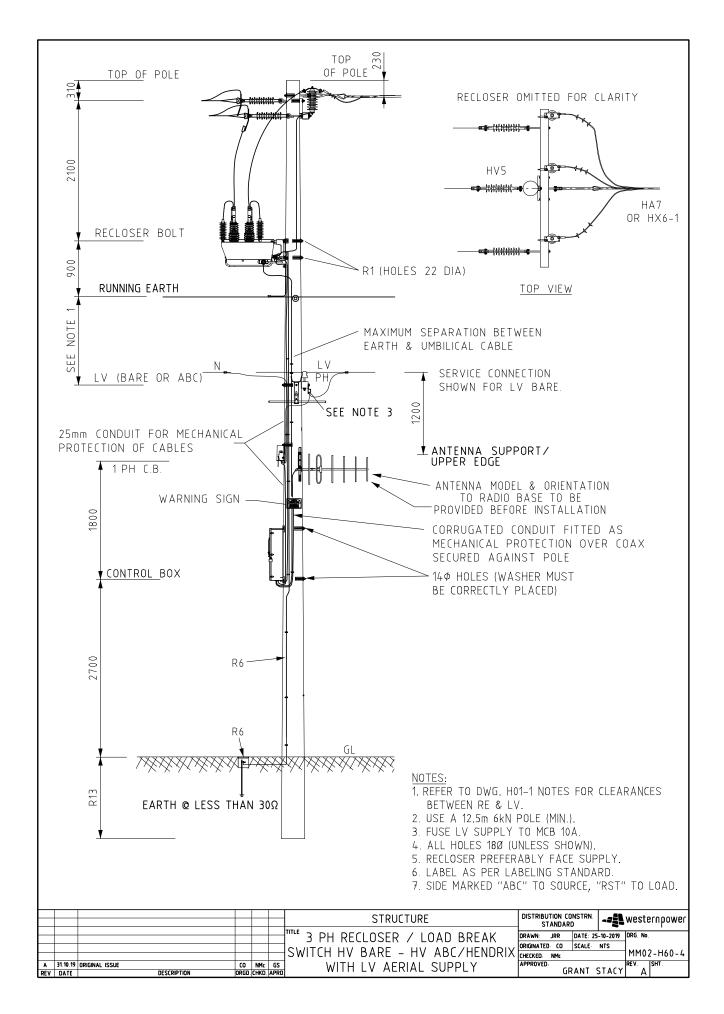




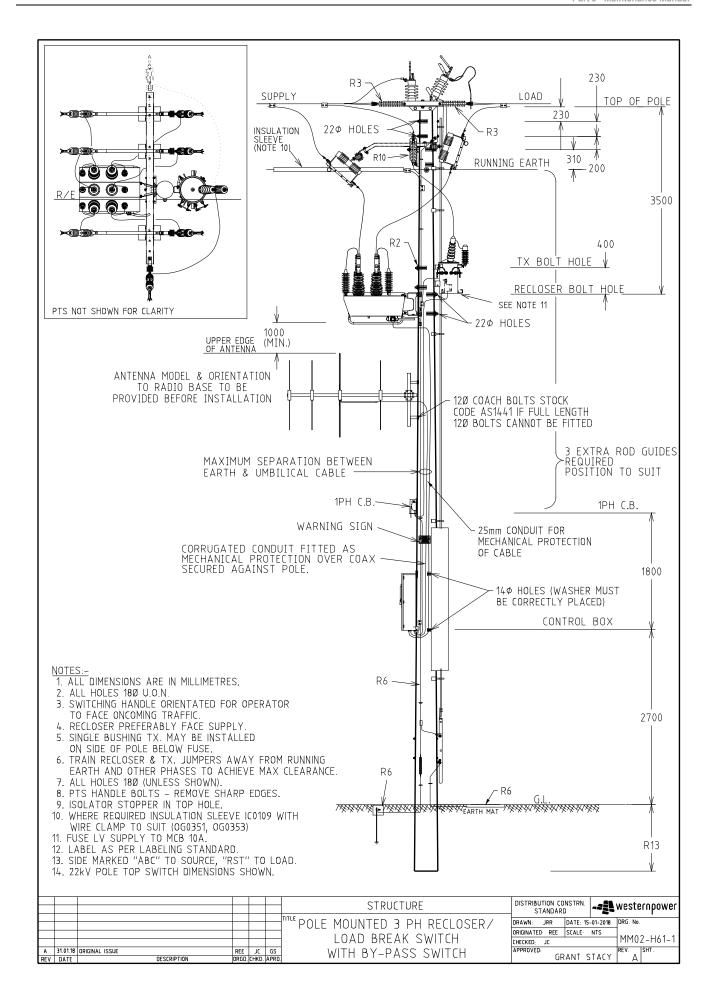




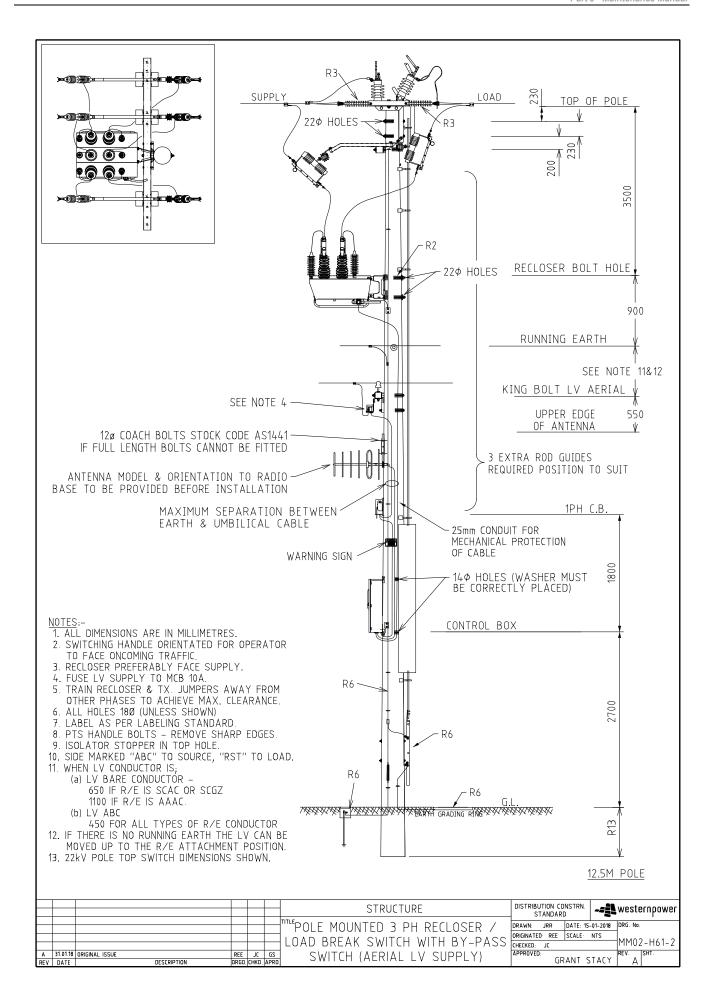




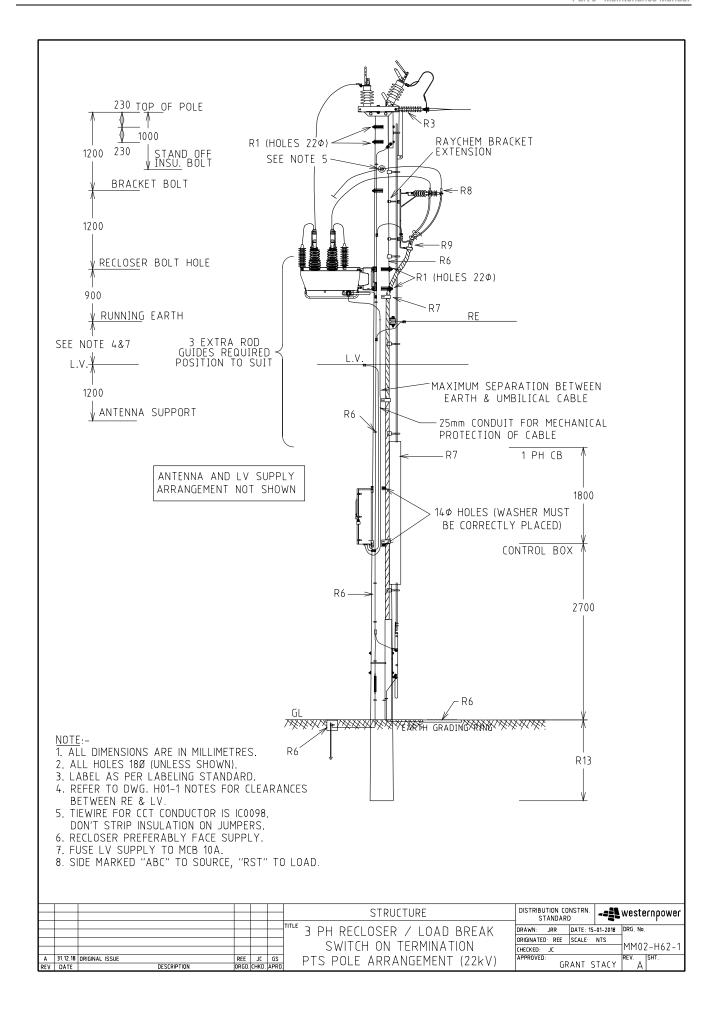




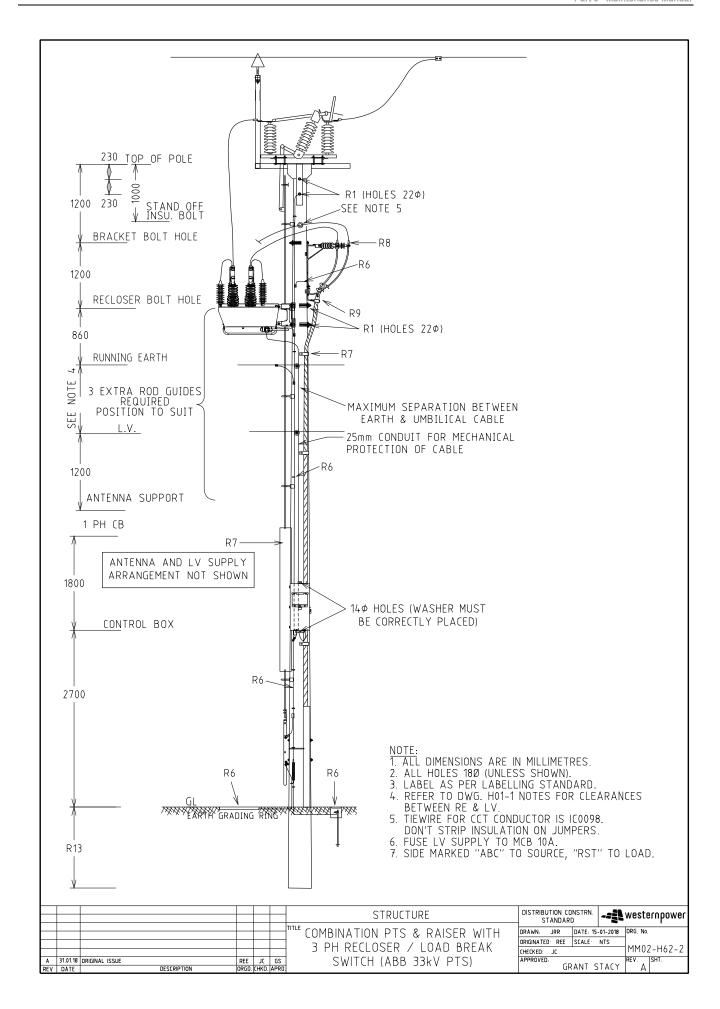












STOCK CODE	DESCRIPTION	RELEVANT DRAWINGS		
GS0311	SCHNEIDER/NULEC 3¢ 22kV RECLOSER	   MM03–H16–1, MM03–H17–1		
GS0312	SCHNEIDER/NULEC 3¢ 33kV RECLOSER	111105-1110-1, 1111105-1117-1		
GS0310	SCHNEIDER/NULEC 1¢ 12.7kV RECLOSER	MM03-H51-2, MM03-H51-4		
GS0314	SCHNEIDER/NULEC 1¢ 19.1kV RECLOSER			
GS0303	1Φ HYDRAULIC RECLOSER (KYLE TYPE 'E' RECLOSER	FUTURE		

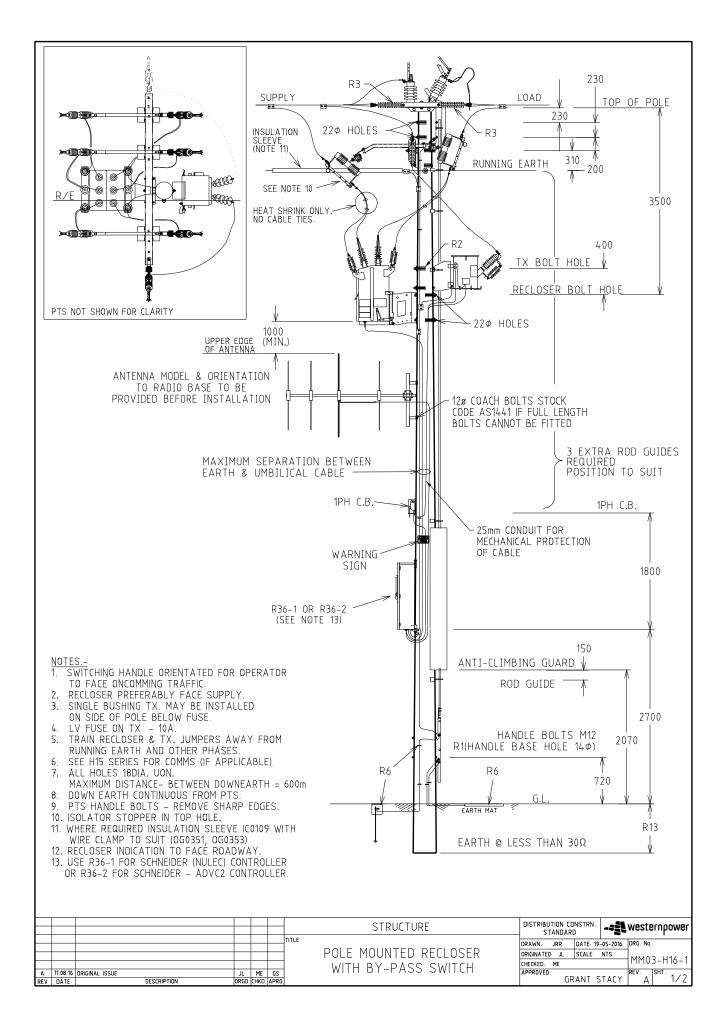
- NOTES:

  1. ITEM FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS)
  BEFORE ATTACHMENT TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).

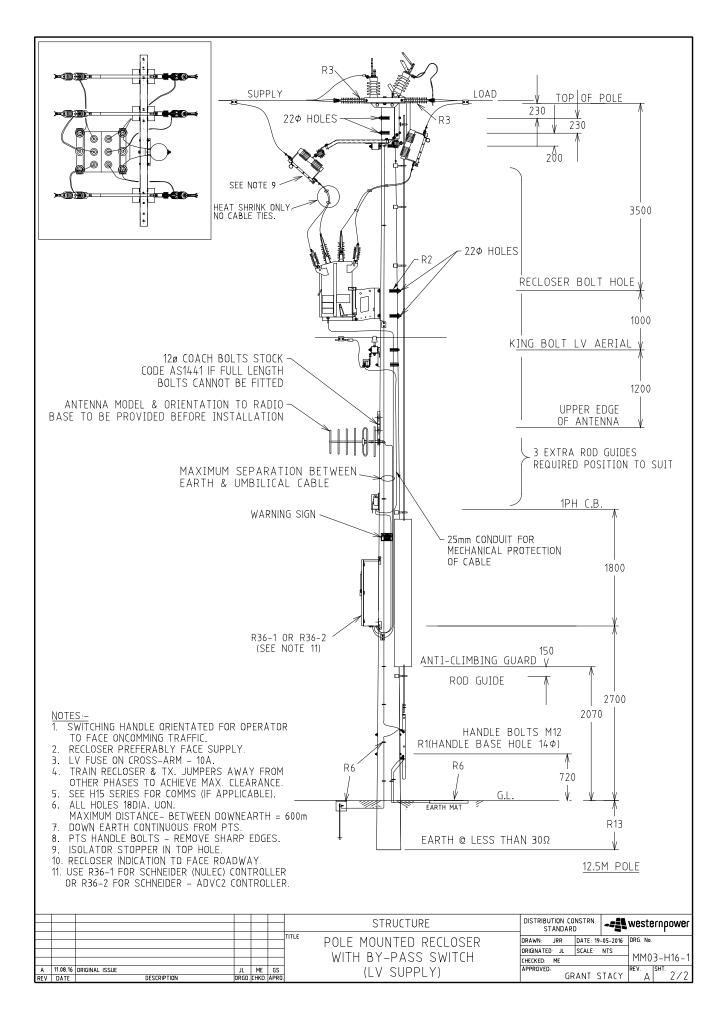
  2) APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION
  3) SUPERSEDED: IN LINE ISOLATOR ARRANGEMENTS FOR RECLOSERS DUE TO FIELD COMMENTS.

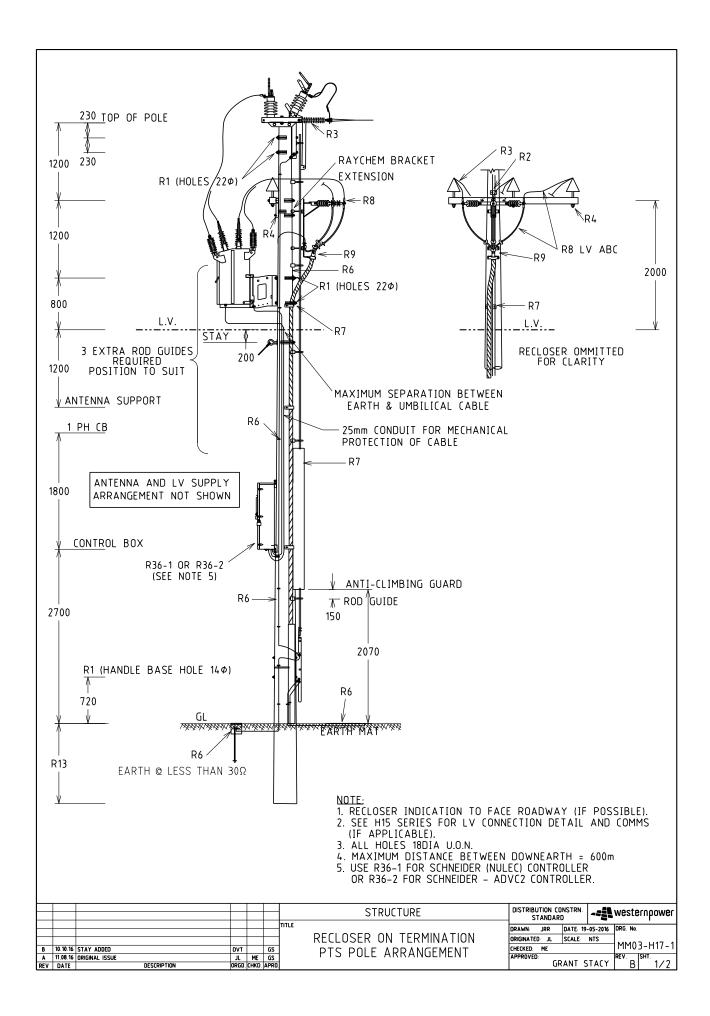
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В	19.12.19	TABLE OF DRAWING NUMBERS REVISED	CO	NMc	GS	1		CHECKED: ME				
Α	11.08.16	ORIGINAL ISSUE	JC	ME	GS	1		APPROVED:			REV. SHT.	
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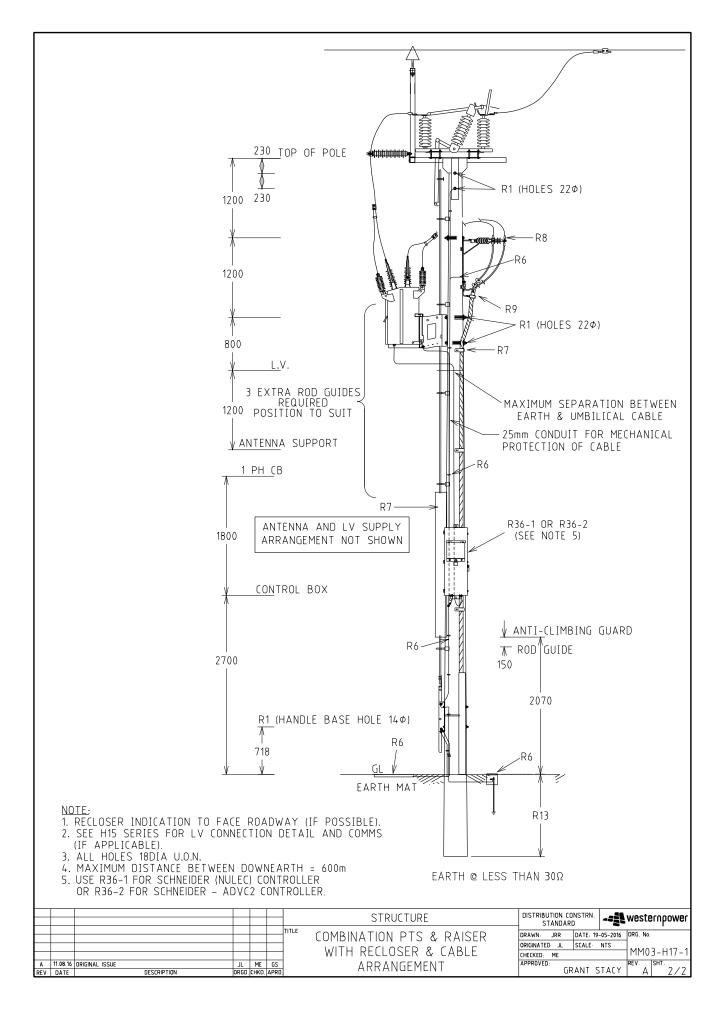




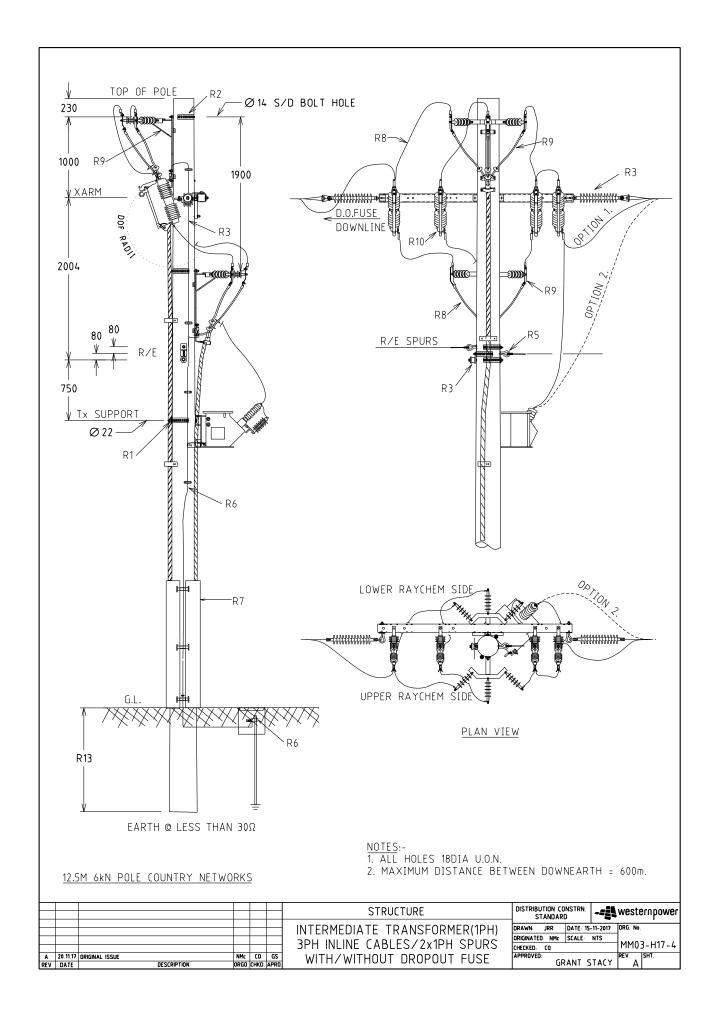




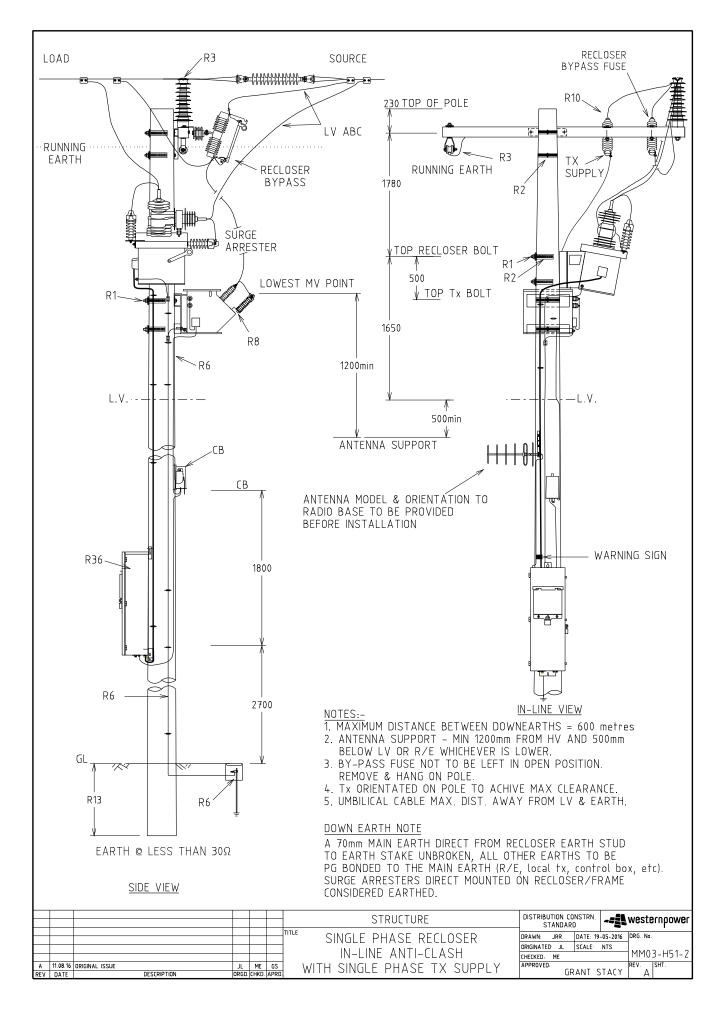




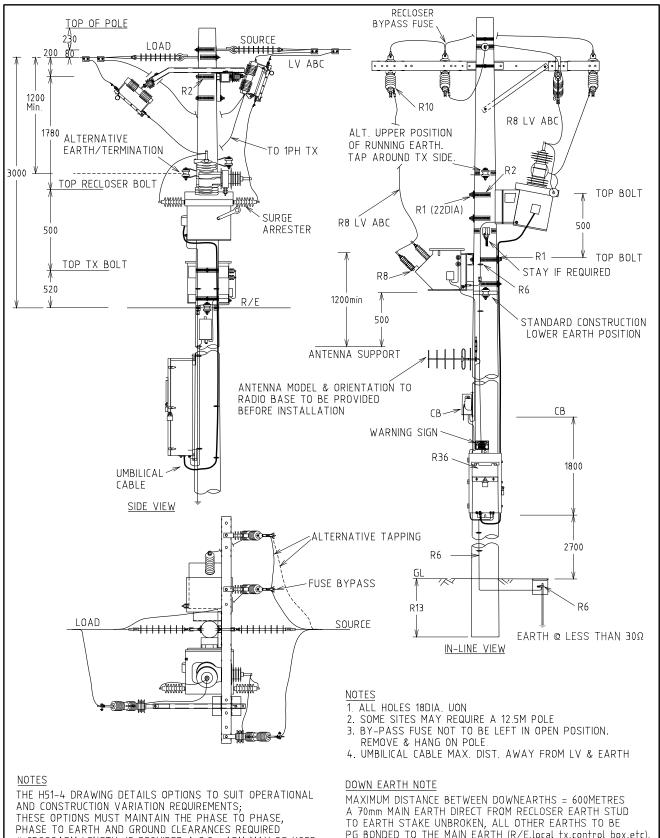










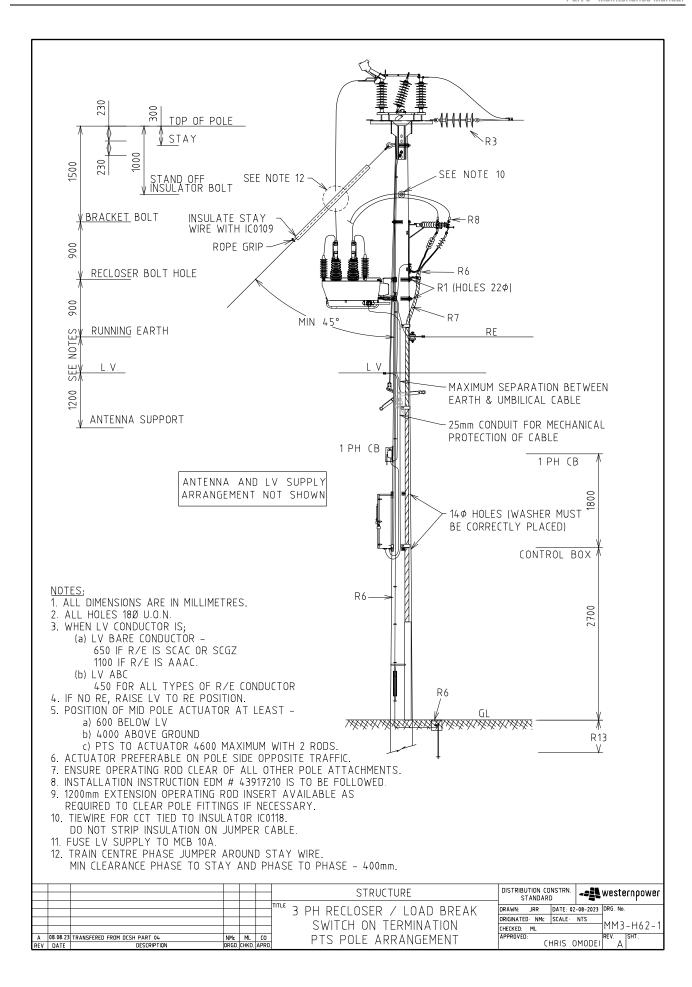


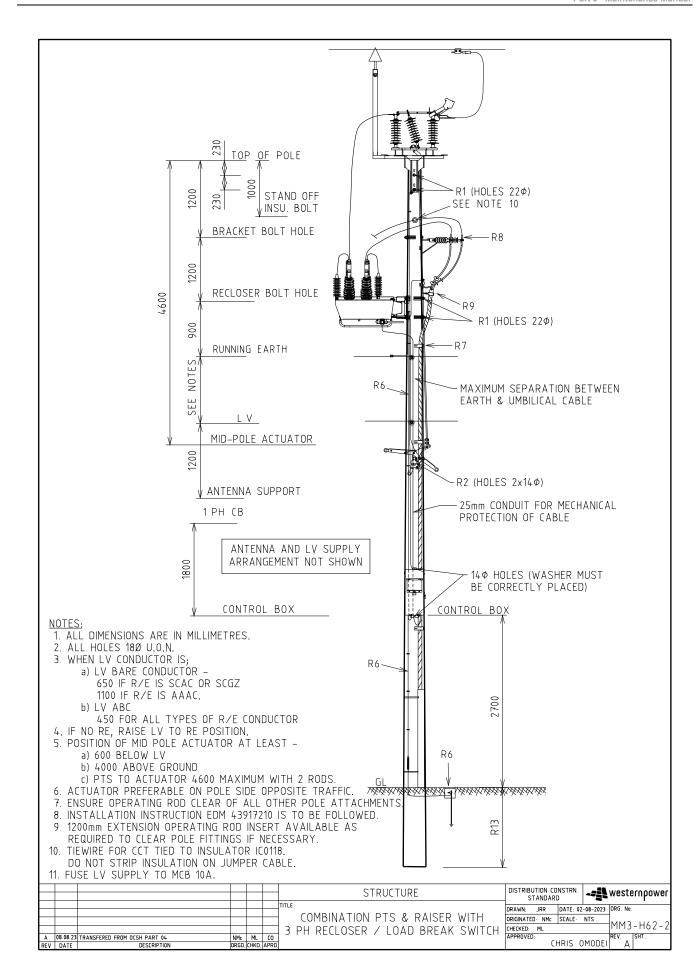
# CROSSARM LENGTH, IF REQUIRED A 3.3m ARM MAY BE USED. # R/E LOCATION BETWEEN UPPER AND LOWER POSTIONS. # TX AND RECLOSER POSITIONS 2 DIMENSIONS SHOWN.

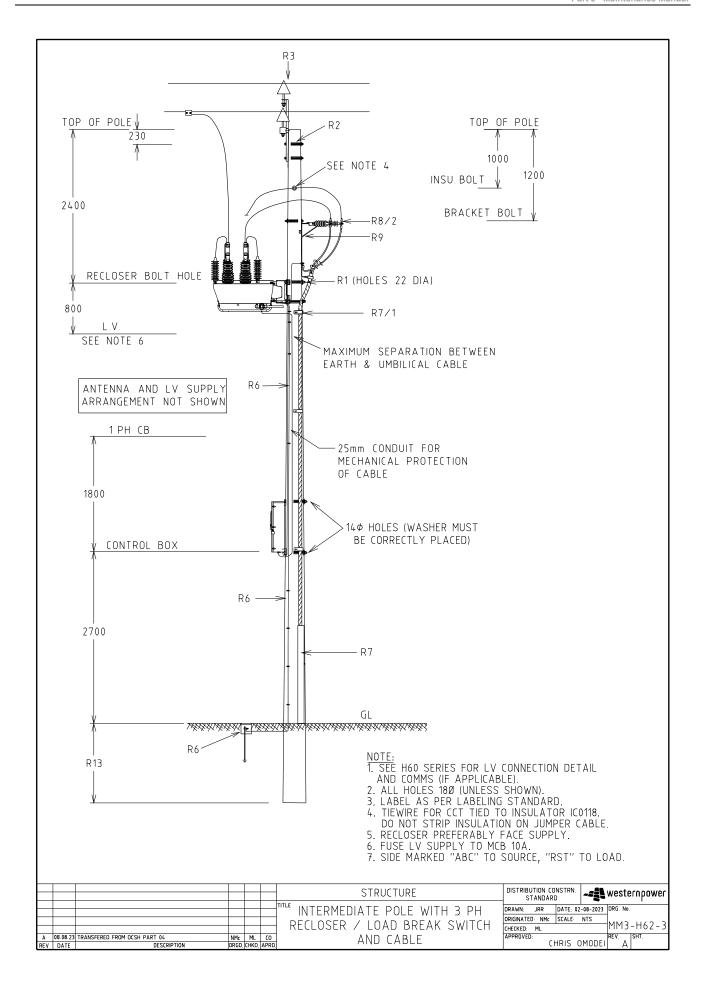
MAXIMUM DISTANCE BETWEEN DOWNEARTHS = 600METRES
A 70mm MAIN EARTH DIRECT FROM RECLOSER EARTH STUD
TO EARTH STAKE UNBROKEN, ALL OTHER EARTHS TO BE
PG BONDED TO THE MAIN EARTH (R/E, local tx, control box, etc). SURGE ARRESTERS DIRECT MOUNTED ON RECLOSER/FRAME CONSIDERED EARTHED.

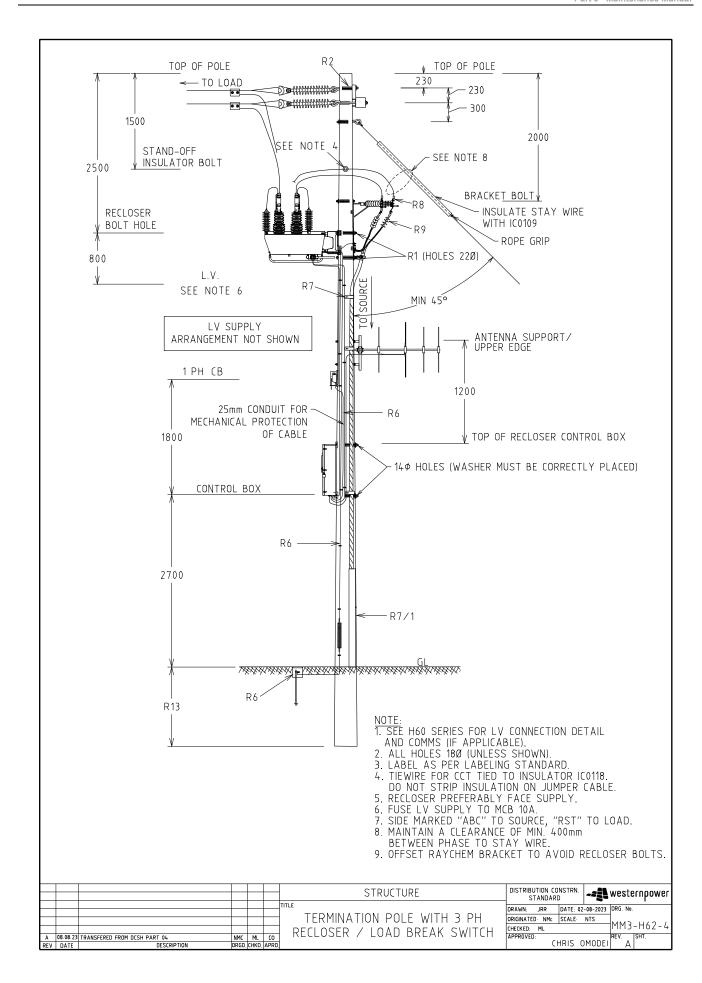
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						TITUSINGLE PHASE RECLOSER BY-PASS	DRAWN: JRR DATE: 19	-05-2016 DRG. No.			
						I IONI ATODO / OTD AINI TEDMINIATIONI	ORIGINATED JL SCALE CHECKED: ME	MM03-H51-4			
A RFV	11.08.16 DATE	ORIGINAL ISSUE  DESCRIPTION	JL ORGD	WE	GS	WITH SINGLE PHASE TX SUPPLY	APPROVED: GRANT S	STACY A SHT.			

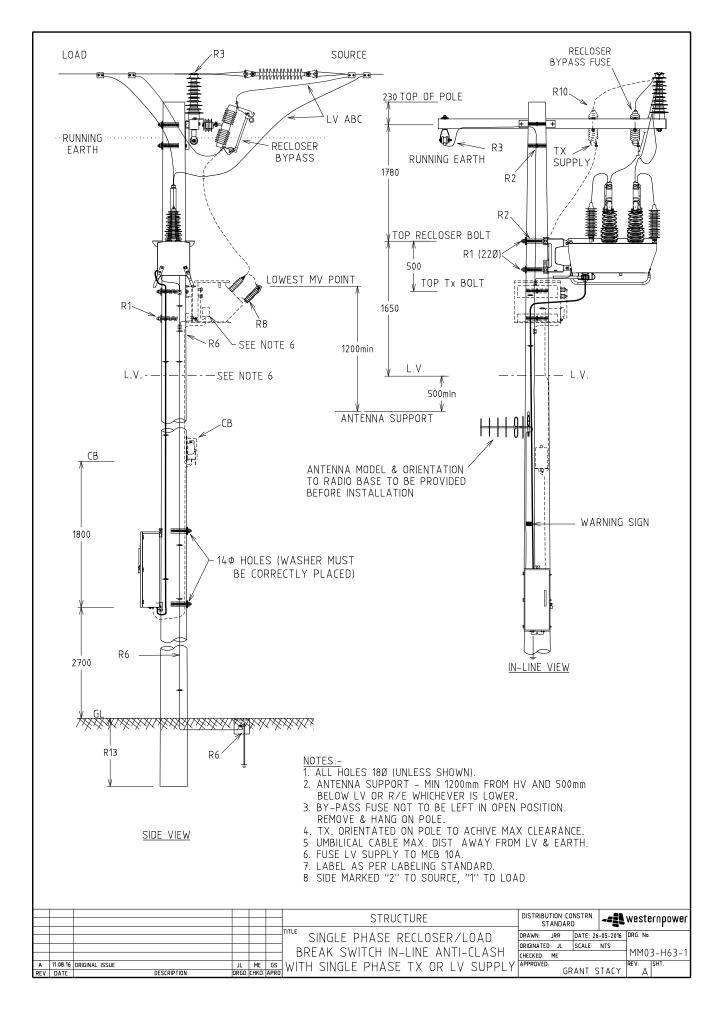














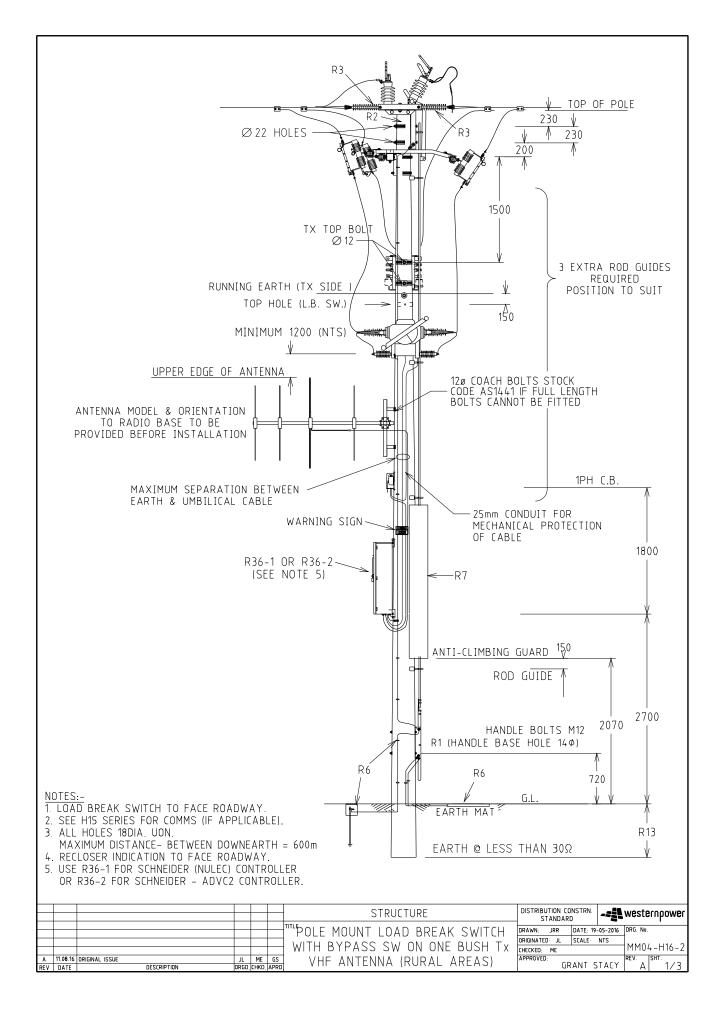
STOCK CODE	DESCRIPTION	RELEVANT DRAWINGS
GS0131	33kV NULEC/SCHNEIDER LBS	MM04-H16-2

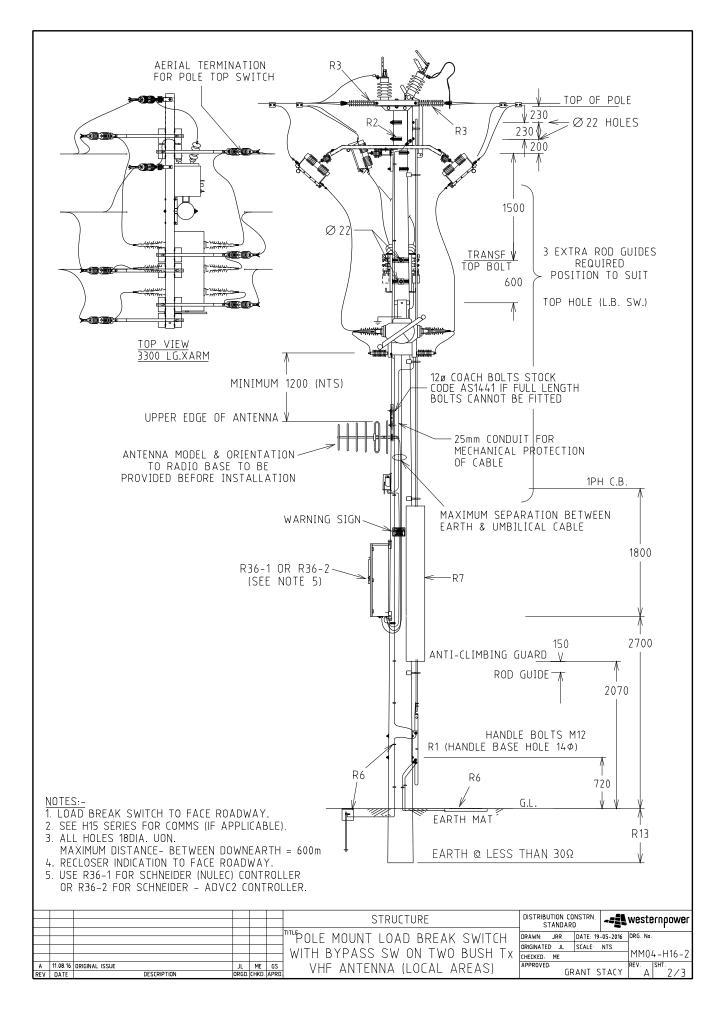
NOTES:

1. ITEM FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS)
BEFORE ATTACHMENT TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).
2. APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION.

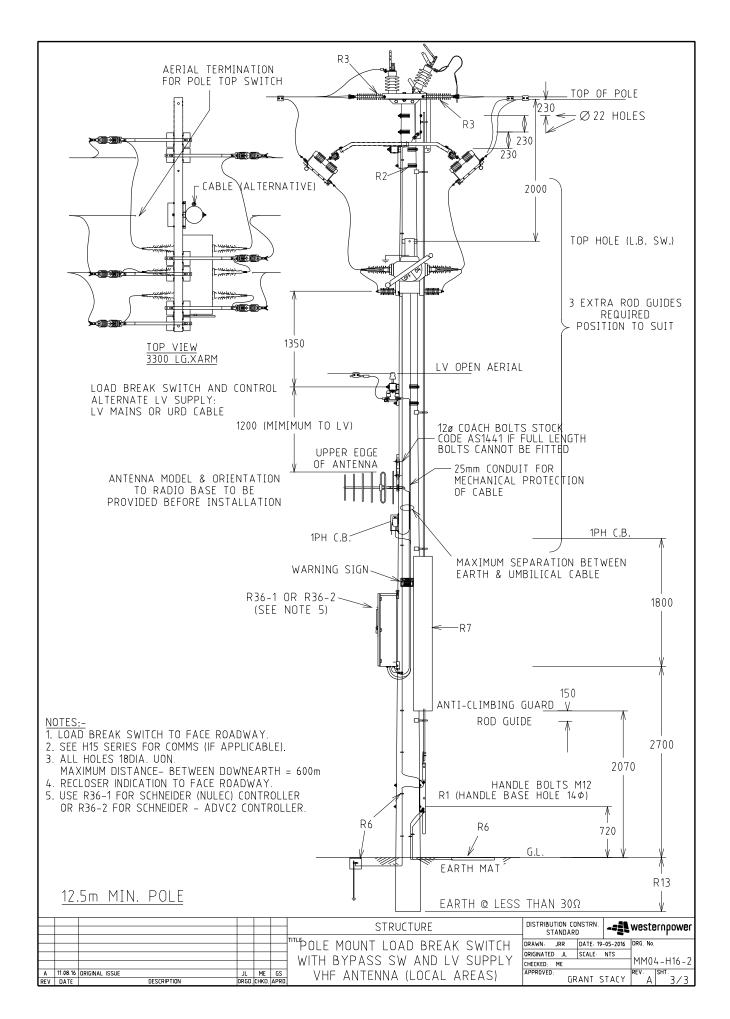
						STRUCTURE	DISTRIBUTION CONSTRN.	<b>~≈</b> € westernpower
						STRUCTURE	STANDARD	-=== Mezrei iihomei
						TITLE	DRAWN: JRR DATE 29-	06-2016 DRG NO
						LOAD DDEAK OLUTCH	DRAWN: JRK DATE: 27-	-00-2010 DNG 110
						LOAD BREAK SWITCH	ORIGINATED JC SCALE	NTS MMO/
В	19.12.19	LIST OF DRAWINGS IN THE TABLE REVISED	CO	NMc	GS	REINSTALLATION	CHECKED: ME	MM04
Α	11.08.16	ORIGINAL ISSUE	JC	ME	GS	KLINSTALLATION	APPROVED:	REV SHT
REV	DATE	DESCRIPTION	ORGO.	CHKD	APRO		GRANT S	STACY BL I













STOCK CODE	DESCRIPTION	RELEVANT DRAWINGS
GS6017	SECTIONALISER FOR RECLOSER W/10A COIL;3 SHOT;120SEC RECLAIM TIME;MANUAL RESET	H53

- NOTES:

  1. ITEM FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS)
  BEFORE ATTACHMENT TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).

  2. APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION.

						STRUCTURE	DISTRIBUTION CONSTRN. STANDARD	-== westernpower
						TITLE	- 017111871118	
-	_		_		_	TILE	DRAWN: JRR DATE 25	9-06-2016 DRG. NO.
						CECTIONIAL ICED DEINICTALL ATION	ORIGINATED JC SCALE	NTS NAMO E
						SECTIONALISER REINSTALLATION	CHECKED: ME	MM05
Α	11.08.16	ORIGINAL ISSUE	JC	ME	GS		APPROVED:	REV SHT
REV	DATE	DESCRIPTION	ORGO.	CHKD.	APRO		GRANT S	STACY   A



STOCK CODE	DESCRIPTION	RELEVANT DRAWINGS

1. ITEM FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS)
BEFORE ATTACHMENT TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).
2. APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION.

							STRUCTURE	DISTRIBUTION CONSTRN
							STRUCTURE	STANDARD
						TITLE		DRAWN: JRR DATE: 29-06-2016 DRG. NO.
1								DRAWN: JRR DATE: 29-00-2016 DRG. NO.
			1			1	REGULATING TRANSFORMERS	ORIGINATED JC SCALE NTS
						1	REINSTALLATION (FUTURE)	CHECKED: ME MMO
Α	11.08.16	ORIGINAL ISSUE	JC	ME	GS	1	KLINSTALLATION (TOTOKL)	APPROVED: REV. SHT.
RFV	DATE	DESCRIPTION	ORGO	CHKD	APRO	ī		GRANT STACY   A



STOCK CODE	DESCRIPTION	RELEVANT DRAWINGS
GF0020	DOF	
GF0021	DOF	SEE RELEVANT
GF0041	DOF	CONSTRUCTION
GF1540	FUSELINK	STANDARDS DRAWING PART 4 HV OVERHEAD
GF1850	DOF	
GF1913	FAULT TAMER	

- 1. ITEM FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS) BEFORE ATTACHMENT TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).

  2. APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION.

  3. LIST OF DRAWINGS HAVE NOT BEEN LISTED FOR CLARITY DUE TO THEIR WIDESPREAD USE.

						STRUCTURE	DISTRIBUTION CONSTRN. STANDARD	-== westernpower
						TITLE	017111871118	
⊢	_		+	-	-	IIILE	DRAWN: JRR DATE: 21	9-06-2016 DRG. NO.
	1							
						DDOD OUT FLICE DEINCTALLATION	ORIGINATED JC SCALE	NTS NAMO 7
$\vdash$			1			DROP OUT FUSE REINSTALLATION	CHECKED: ME	MM07
<b>–</b>	11 00 1/	DRIGINAL ISSUE	1.0	145			APPROVED:	REV. ISHT.
A	11.06.16		JL	ME	GS		AFFRUVED:	
DEV	DATE	DESCRIPTION	ORGO	CHKD	APRI		GRANT S	STACY   A



STOCK CODE	DESCRIPTION	RELEVANT DRAWINGS
RC0002	22kVAr CAPACITOR	H31–1, H31–2, H32–1, H32–2

1. ITEM FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS)
BEFORE ATTACHMENT TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).
2. APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION.

							STRUCTURE	DISTRIBUTION CONSTRN.	-50	wastacaaawac
							STRUCTURE	STANDARD		westernpower
						TITLE				•
						1'''''	•	DRAWN: JRR DATE: 2	29-06-2016	DRG. NO.
-						1		ORIGINATED JC SCALE	NTS	1
						4	CAPACITORS REINSTALLATION			MM08
						1	CALACITORS NEINSTALLATION	CHECKED: ME		
Α	11.08.16	ORIGINAL ISSUE	JC	ME	GS	1		APPROVED:		REV. SHT.
REV	DATE	DESCRIPTION	ORGO.	CHKD.	APRO	ī.		GRANT	STACY	A



THIS SECTION OF THE MANUAL INCLUDES GENERAL OVERHEAD LINE MAINTENANCE, SUCH AS

- \* POLE TOP CONSTRUCTION GUIDANCE
- \* POLE CHECKS & SPLITS REPAIR
- \* CONDUCTOR REPAIR
- \* CONDUCTOR SPEADER INSTALL

						STRUCTURE	DISTRIBUTION CONSTRN. STANDARD	-== westernpower
						GENERAL OVERHEAD LINE	DRAWN: JRR DATE: 02 ORIGINATED CO SCALE CHECKED: NMc	2-04-2019 DRG. NO. MM09
A REV	05.14.19 DATE	DESCRIPTION	CO ORGO.	NMc CHKD	GS APRO	MAINTLINANCE	APPROVED: GRANT S	STACY A SHT



DESCRIPTION	RELEVANT DRAWINGS	APPLICATION
SINGLE PHASE INTERMEDIATE WITH EXTENDED RAISER	MM09-H40-1	WHEN THE EXISTING EXTENDED RAISER BRACKET IS UNSERVICEABLE BUT THE POLE IS FIT FOR PURPOSE REPLACE THE RAISER BRACKET USING THIS CONSTRUCTION.  IF THE POLE IS UNSERVICEABLE, IT SHOULD BE REPLACED WITH AN APPROPRIATELY SIZED POLE AND DCSH H40-1.
VERTICAL INTERMEDIATE LV CONSTRUCTION	MM09-L01	SUITABLE FOR SINGLE POLE REPLACEMENT WHERE ADJACENT STRUCTURES ARE ALSO VERTICAL.
3 PHASE INTERMEDIATE WITH RUNNING EARTH	H01-1	APPLY WHEN HISTORICAL CONSTRUCTION TYPES HAVE BEEN USED, SEE THE PICTURE.

- 1. POLE FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS)
  BEFORE INSTALLATION TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).
  2. APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION.

							ST	RUCTURE	DISTRIBUTION CO		-= <u>{</u> {	westernpower
ı						TITLE			204141 100	0475 00	01 0041	DDC NO
						1			DRAWN: JRR	DATE: 29	-06-2016	DRG. NO.
С	05.04.19	DRAWING NUMBER CHANGED	CO	NMc	GS	D0	LE TOD	CONSTRUCTION	ORIGINATED JC	SCALE	NTS	MM09-1-1
В	03.02.17	DRAWING NUMBER CHANGED AND MORE DETAILS ADDED	CO	REE	GS	j PU	LE TOP	CONZIROCITON	CHECKED: REE			1111107-1-1
Α	09.08.16	ORIGINAL ISSUE	JC	REE	GS	ĺ			APPROVED:			REV. SHT.
REV	DATE	DESCRIPTION	ORGO.	CHKD.	APRO				l uh	RANT S	STACY	I LI I



DESCRIPTION	RELEVANT DRAWINGS	APPLICATION	
3 PHASE INTERMEDIATE ANTI-SWAN CROSSARM	H01-3	APPLY WHEN A HIGH RAISER OR STRING INSULATOR HAS BEEN USED TO MITIGATE CLASHING, BIRD STRIKES OR LONG BAYS. SEE BELOW. (GROUND CLEARANCE TO BE CHECKED)	
INTERMEDIATE WISHBONE WITH	H22	APPLY INTERMEDIATE WISHBONE CONSTRUCTION, SEE BELOW.	
OVERHEAD EARTH WIRE			
INTERMEDIATE FLAT CONSTRUCTION WITH OVERHEAD EARTH WIRE	H23		
		STRUCTURE DISTRIBUTION CONSTRN. STANDARD	ernpa
05.04.19 DRAWING NUMBER CHANGED 03.02.17 DRIGINAL ISSUE		DRAWN: TITLE  DRAWN: ARR DATE: 30-11-2016 DRG. NO. ORIGINATED CO SCALE: NTS CHECKED: REE  CHECKED: REE	)9-1



DESCRIPTION	RELEVANT DRAWINGS	APPLICATION
VERTICAL STRAIN	H26	
INLINE STRAIN WITH OVER HEAD EARTH WIRE	H26-2	
VERTICAL STRAIN ANGLE	H28	
		STRUCTURE DISTRIBUTION CONSTRN. STANDARD Westernpowe
B 05.04.19 DRAWING NUMBER CHANGED A 03.02.17 ORIGINAL ISSUE REV DATE DESCR	CO CO CO PTION ORGI	TITLE    DRAWN: JRR   DATE: 30-11-2016   DRG: NO.



DESCRIPTION	RELEVANT DRAWINGS	APPLICATION
3X1 POLE LONG BAY SOLUTION	H41-2	APPLY LONG BAY 3 POLE INSTALLATION, SEE BELOW
1 PHASE DOUBLE TERMINATION TRANSFORMER WITHOUT DROPOUT FUSE	H47-3	
		STRUCTURE DISTRIBUTION CONSTRN. STANDARD STANDARD
B 05.04.19 DRAWING NUMBER CHANGED A 03.02.17 DRIGINAL ISSUE  REV DATE DESCRIP	CO CO	DRAWN: JRR DATE: 04-01-2017 DRG. NO.  ORIGINATED CO SCALE: NTS MMOQ 1



PRE-WORK	ASSESS THE CONDITION OF THE POLE, CONDUCTORS, MOUNTED EQUIPMENT AND HARDWARE TO ENSURE THAT THE WORK CAN BE CARRIED OUT SAFELY:     POLES ARE FREE OF ALL OTHER DEFECTS EXCEPT CHECKS OR SPLITS     POLE TOP HAS SUFFICIENT GOOD WOOD PRESENT TO SECURE THE STRAPS.      TOP DOLL IS AT THE POLE TOP THE POLE TOP.
	<ul> <li>TOP BOLT IS AT &gt;50mm FROM THE POLE TOP.</li> <li>POLE IS SOUND AND NOT SEVERELY INFECTED WITH ROT/TERMITES.</li> <li>● ENSURE AVAILABILITY OF TOOLS AND EQUIPMENT NEEDED TO SUPPORT CROSS-ARMS AND CONDUCTORS WHEN REQUIRED</li> </ul>
STRAP INSTALLATION	<ul> <li>APPLY 32mm BAND-IT STRAPS. IN SITUATIONS WHERE THERE IS INSUFFICIENT SPACE OR CLEARANCES TO USE THE 32mm BAND-IT TOOL, CONSIDER USING 3 OF 16mm BAND-IT STRAPS, FITTED AS CLOSE AS POSSIBLE TO EACH OTHER.</li> <li>CUT AND SHAPE THE STRAP TO FIT THE POLE CIRCUMFERENCE AVOIDING EXCESSIVE LENGTH OF STRAP BECOMING A HAZARD.</li> <li>INSTALL THE FIRST STRAP AT THE TOP, AND WORK DOWNWARDS FOLLOWING THE INSTALLATION GUIDELINES.</li> </ul>

# GUIDELINES:

DESCRIPTION	APPLICATION	POLE TOP SCENARIO
ATTACHING BAND-IT STRAPS AT THE TOP KING BOLT OR STAY EYE BOLT	AT THE TOP KING BOLT OR STAY EYE BOLT:  ● INSTALL STRAPS AS CLOSE AS POSSIBLE TO THE KING BOLT OR ATTACH IT UNDERNEATH THE WASHER.  ● WHEREVER POSSIBLE AVOID INSTALLING THE STRAP ON THE BULGING AREAS, OVER KNOTS OR OVER THE WASHER.	
ATTACHING BAND-IT STRAPS TO SUPPORT STAY EYE BOLT	AT STAY EYE BOLT:  INSTALL A STRAP IMMEDIATELY ABOVE THE TOP AND ANOTHER STRAP BELOW THE BOTTOM OF STAY EYE BOLT.	
ATTACHING BAND-IT STRAPS TO SUPPORT RAISER BOLTS	AT RAISER BOLTS:  ● INSTALL 32mm STRAPS (IN ALL CASES)  ABOVE AND BELOW AND AS CLOSE AS  POSSIBLE TO THE RAISER BOLTS DIRECTLY  TO WOOD, AS SHOWN, NOT AROUND RAISER	O O Raiser

						STRUCTURE	DISTRIBUTION CO STANDARD		-: <u>!</u> !	westernpower
A REV	05.04.19 DATE	ORIGINAL ISSUE DESCRIPTION	LT	NMc	GS L APRO	POLE TOP CHECKS/SPLITS REPAIR WITH BAND-IT STRAPS	ORIGINATED SA CHECKED: LT APPROVED:	DATE: 11- SCALE:	NTS	DRG. NO.  MM09-2-1  REV. A SHT.

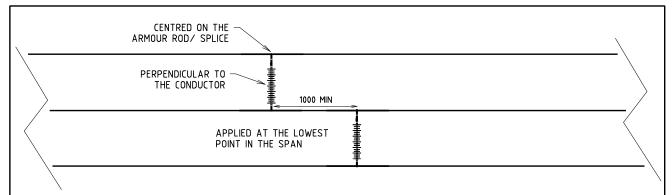


DESCRIPTION.	1001/617/01	2015 702 055111010
WASHER REPLACEMENT (75mmx75mm)	IF THE SPLIT WIDTH AFTER REPAIR IS <20mm, EXISTING WASHER (45mm x 45mm) DOES NOT NEED TO BE REPLACED.  WASHER REPLACEMENT IS REQUIRED IF:  ● SPLIT WIDTH AFTER REPAIR IS ≥20mm  ● EXISTING WASHER IS DEFORMED  REPLACEMENT SCENARIOS:  (1) WASHER ON THE HEAD SIDE OF THE BOLT PULL-THROUGH LOAD:  ● INSTALL STRAPS ABOVE AND BELOW THE BOLT UNDERNEATH THE EXISTING WASHER.  ● SUPPORT THE LOWER STRAP WITH A FEW SCREWS TO AVOID SLIDING DOWN.  (2) WASHER ON THE CROSS ARM:  ● INSTALL STRAPS ABOVE AND BELOW THE CROSS ARM AS CLOSE AS POSSIBLE.	POLE TOP SCENARIO  Screws  Screws
BAND-IT TOOL OPERATION	CHECK CLEARANCES BETWEEN HV AND LV CONDUCTORS AND OTHER HARDWARE TO ENSURE THAT THE BAND-IT TOOL CAN BE USED SAFELY.  A RADIUS OF 400mm AND ANGLE OF 90-120° IS REQUIRED FOR TOOL OPERATION.  CARE MUST BE TAKEN TO AVOID OVER TENSIONING THE STRAPS. AS A GENERAL RULE, AT THE FIRST WOOD CRACKING SOUND, THE BAND TIGHTENING CAN BE STOPPED.	Pole 90° - 120° Strap Band-It tool

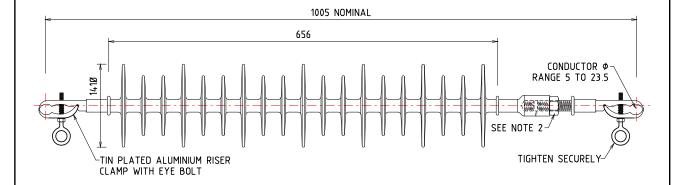
- 1. THE INTENT OF STRAPPING IS TO PREVENT FURTHER SPLITTING OF THE POLE, NOT TO CLOSE THE SPLIT, ALTHOUGH THIS MAY OCCUR DURING TIGHTENING OF THE BAND-IT STRAP.
- 2. ATTACH ADDITIONAL STRAPS AS REQUIRED BETWEEN BOLTS IF THE CHECK/SPLIT IS PRESENT AND THE DISTANCE BETWEEN STRAPS IS GREATER THAN 300mm.
- 3. RE-TIGHTEN ANY LOOSE BOLTS, e.g. KING BOLT, BRACING STRAPS, RAISER, Etc. AFTER STRAP IS APPLIED.

						CTDUCTUDE	DISTRIBUTION CONSTRN	-51 westers sower
						STRUCTURE	STANDARD	-== westernpower
						TITLE		-03-2019 DRG. NO.
							DRAWN: JRR DATE: 11-	
						POLE TOP CHECKS/SPLIT	ORIGINATED SA SCALE	
						REPAIR WITH BAND-IT STRAPS	CHECKED: LT	111109-2-2
Α	05.04.19	ORIGINAL ISSUE	LT	NMc	GS	KLEAK WIIII DAND-II SIKAES	APPROVED:	REV. SHT.
REV	DATE	DESCRIPTION	ORGO.	CHKD	APRO		GRANT S	STACY   A





# TYPICAL BAY - PLAN VIEW



SPECIFICATIONS:- (STOCK CODE: IC0003)

INSULATION MATERIAL : SILICONE
WEIGHT : 3.7kg
SPECIFIED MECHANICAL LOAD (SML) : 70kN
IMPULSE WITHSTAND VOLTAGE (BIL) : 460kV
FLASHOVER WITHSTAND VOLTAGE (WET) : 215kV

# INSTALLATION INSTRUCTIONS

MAINTENANCE STOCK ITEM USED TO ELIMINATE CONDUCTOR CLASHING DUE TO UNDER TENSIONED CONDUCTORS.

TYPICALLY INSTALLED MIDSPAN ON LONG BAYS.

# SPREADERS SHALL BE INSTALLED:

- \*ON ISOLATED AND EARTHED HV LINE.
- \*ON BARE HV OVERHEAD CONDUCTORS ONLY, VIZ. ALUMINIUM, ACSR AND AC OR GZ STEEL
- \*INDIVIDUALLY (PREFERRED) OR AS A PAIR BETWEEN PHASE CONDUCTORS
- \*OVER AN ARMOUR ROD OR HELICAL SPLICE TO PROTECT THE CONDUCTOR FROM WEAR.
- \*KRYPTON CONDUCTOR APPLY ALUMINIUM TAPE (CT0114) 100mm WIDE UNDER CLAMP.
- \*WITH CLAMPS A MIN. 1000mm APART WHEN MORE THAN ONE CLAMP ATTACHED TO SAME CONDUCTOR E.G. CENTRE PHASE.
- \*AT 90° TO THE CONDUCTOR TO PREVENT EXCESSIVE AND UNEVEN WEAR.
- \*BAYS (TYPICALLY LONG BAYS) WITH LARGE ATTACHMENT HEIGHT VARIATION, SPREADER/S TO BE INSTALLED AT CENTRE OF SAG, NOT MIDSPAN.

## NOTES -

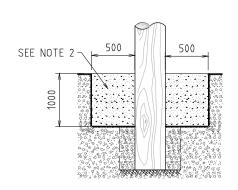
1. ALL DIMENSIONS ARE IN MILLIMETRES

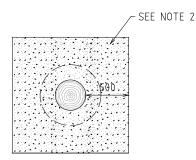
2. ROTATE CLAMP TO ENSURE PROPER FITMENT TO CONDUCTOR. LOCK NUT TIGHTENED AS SHOWN.

SEE L18-05

							STRUCTURE	DISTRIBUTION C		-==!	westernpower
						TITLE	GENERAL OVERHEAD LINE				DRG. NO.
С	17.02.20	INSTALLATION INSTRUCTION REVISED	NMc	CO	GS	1	HV SPREADER 61kV	ORIGINATED CO	SCALE	NTS	MM09-3-1
В	20.11.19	REVISED TO SUIT WITH NEW SPREADER	NMc		GS	1	HV SPREADER DIKV	CHECKED: NMc			
Α	05.04.19	ORIGINAL ISSUE		NMc	GS		SILICONE INTERPHASE	APPROVED	- A A . T		REV. SHT.
REV	DATE	DESCRIPTION	ORGD.	CHKD.	APRO		SILICONE INTERTITASE	UI UI	RANT	STACY	L





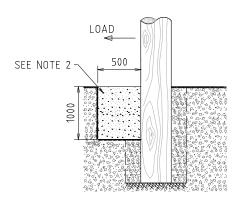


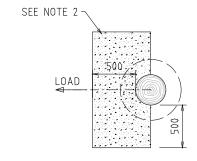
SECTION VIEW

PLAN VIEW

SOIL RATING = MEDIUM (BEFORE TREATMENT) GOOD (AFTER TREATMENT)

# OPTION-1





SECTION VIEW

PLAN VIEW

# OPTION-2

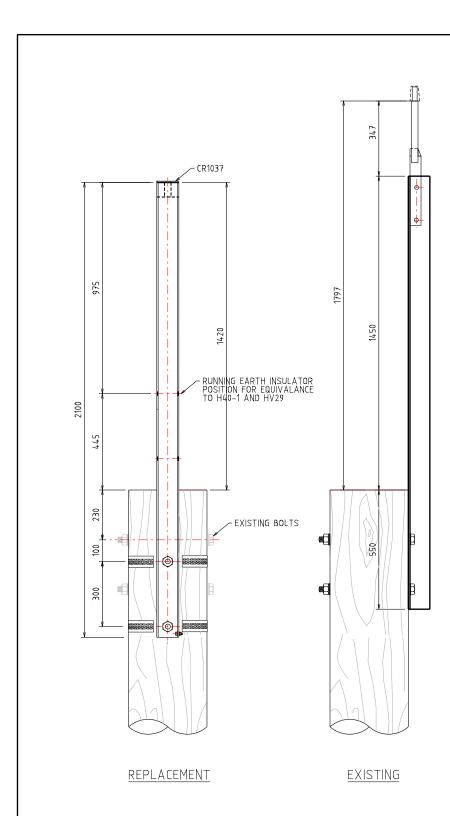
- 1. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.
- 2. BACKFILL WITH EITHER
  - a) ROAD BASE OR
  - b) 5:1 SAND/CRUSHED LIMESTONE MIX
- COMPACTED IN 200 LAYERS

  3. THIS DRAWING IS ONLY APPLICABLE TO EXISTING POLES, ≤10 YEARS. 4. POLE TO BE SUPPORTED DURING SOIL ENHANCEMENT.
- 5. COMPACT THE LAYER BENEATH THE EXCAVATED AREA TO ENSURE WELL COMPACTED SOIL UNDER THE ENHANCED ZONE.
- 6. SSPs, TERMINATION POLE AND T-OFFs SHOULD BE ASSESSED BY DISTRIBUTION STANDARD SUPPORT BEFORE FOUNDATION ENHANCEMENT.

FOUNDATION ENHANCEMENT	APPLICATION
OPTION-1	EXISTING POLES FAILING FOUNDATION CAPACITY IN MEDIUM SOILS
OPTION-2	ANGLE POLES UPTO 10° DEVIATION, SINGLE CIRCUIT, MAX 50m BAYS, WHERE STAY IS NOT FEASIBLE
	EXISTING POLES UPGRADING TO 315kVA TX IN MEDIUM SOILS.

						MAINTENANCE MANUAL	DISTRIBUTION CONSTRN.	-== westernpower
						MAINTENANCE MANUAL	STANDARD	-=== Mesreilihomei
						TITLE		
						<b>1</b> ***	DRAWN: JRR DATE: 19	9-07-2023 DRG. No.
					$\vdash$	H ENHANCED FOUNDATION DETAILS	ORIGINATED SJ SCALE	NTS MMOO F
						IN-SITU DISTRIBUTION POLE	CHECKED: LT	MM09-5
Α	19.07.23	ORIGINAL ISSUE	SJ	LT	CO		APPROVED:	REV. SHT.
REV	DATE	DESCRIPTION	ORGO	CHKD	APRO	1	(HRIS (	DMODEI A I





Rura	Allowable Angle				
Equivalent Conductor	Span Length (m)	Wind Region A	Wind Region B		
	60	32	25		
7/2.50 AAAC	80	26	19		
18% CBL @	100	21	15		
15° CHLORINE	135	16	N/A		
	185	N/A	N/A		
	250	N/A	N/A		
	60	10	7		
	80	7	4		
7/4.75 AAAC	100	5	2		
18% CBL @ 15° IODINE	135	3	0		
	185	0	N/A		
	250	N/A	N/A		
	60	10	10		
	80	10	10		
3/2.75 SCAC	100	10	10		
25% CBL @ 15° SCAC	135	10	8		
is- scac	185	8	6		
	250	5	2		

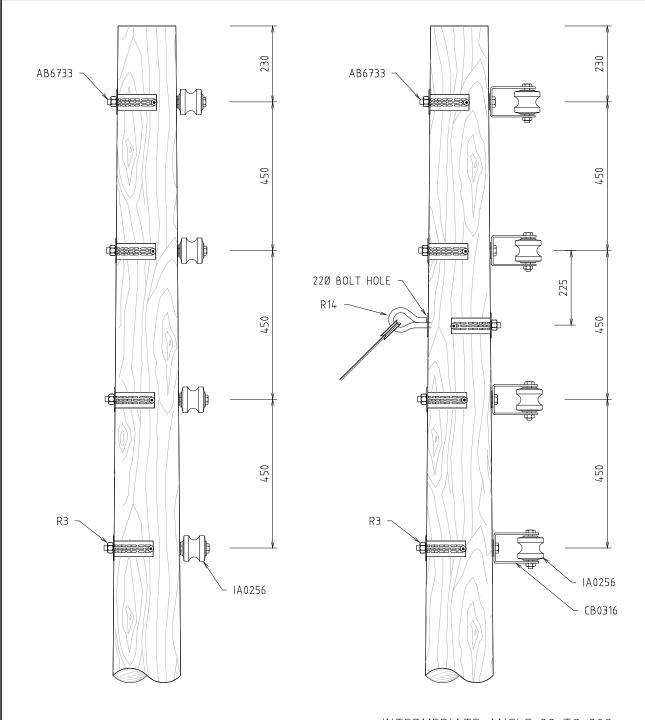
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REPLACEMENT RAISER TO BE ORIENTED IN LINE AT 90° TO THE ORIGINAL RAISER.

						TITLE
		RUNNING EARTH POSITION SPECIFIED	GS	GS	GS	(
		DWG. # CHANGED	ΑT	ME	GS	`
A 2:	22.06.16	ORIGINAL ISSUE	ΑT	DVT	GS	
REV	DATE	DESCRIPTION	ORGD.	CHKD.	APRD.	

EXTENDED RAISER FOR SINGLE PHASE HV ON 9.5m POLE

DISTRIBUTION CO STANDAR	DNSTRN.	<b>~=€</b> westernpower				
DRAWN: JRR	DATE 15-06-2016	DRG No				
ORIGINATED: AT	SCALE: NTS	],,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
CHECKED: ME		MM09-H40-1				
APPROVED: GR	ANT STACY	REV. SHT.				





INTERMEDIATE & ANGLE <2°

INTERMEDIATE ANGLE 2° TO 90° & TERMINATION

## NOTES:-

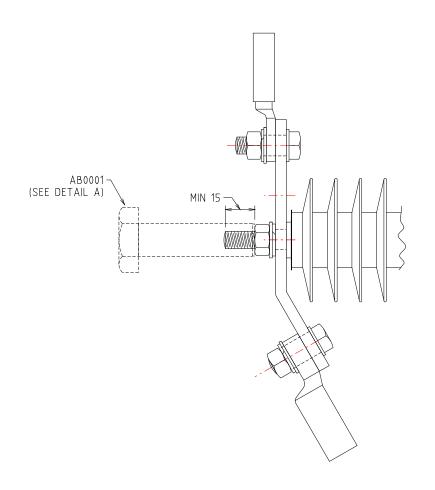
- 1. ALL DIMENSIONS ARE IN MILLIMETRES.
- 2. BOLT HOLES 18Ø U.O.N.
- 3. REFER TO DCSH R16/2 SERIES FOR REQUIREMENT OF STAY INSTALLATION.
- 4. APPLICABLE FOR FLAT GROUND BAYS UPTO 60m FOR
- CONDUCTORS UPTO 7/4.75 AAAC, 7/4.75 AAC OR 7/12 Cu.

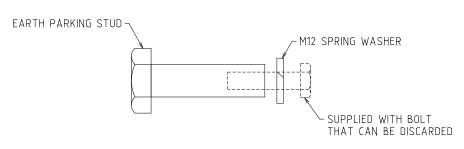
  5. LV SPREADER IR0006 & CLIPS IR0007 ARE TO BE USE WHEN TRANSITIONING FROM VERTICAL CONFIGURATION TO HORIZONTAL CONFIGURATION.

							MAINTENANCE MANUAL	DISTRIBUTION CONSTRN. STANDARD	esternpower
						TITLE		DRAWN: JRR DATE: 10-04-2015 DF	<u>'</u>
В	11.08.16	DRG # CHANGED, "INTERMEDIATE & ANGLE <2°" DETAIL ADDED AND DISTANCE BETWEEN INSULATORS CHANGED	JC	ME	GS			ORIGINATED CO SCALE NTS	MM09-LV-01
A		ORIGINAL ISSUE	CO	AK	GS	1	,	APPROVED: RE	
DEV	DATE	DESCRIPTION	UBBU	CHKD	APRE	ri .	20110111011	I GRANT STACY I	RI



EARTH PARKING STUD ONLY TO BE USED WHEN THE EARTH PARKING BOLT (R09-1) CANNOT BE APPLIED. FOR EXAMPLE IF THE HOLE FOR THE EARTH PARKING BOLT IS NOT PRESENT OR RESTRICTED.



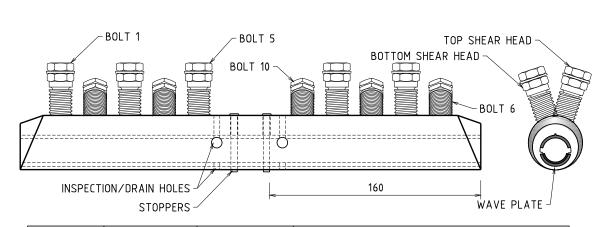


# DETAIL A

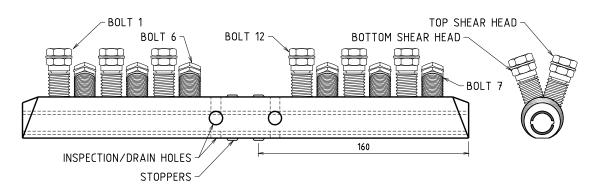
- NOTES:
  1. ALL DIMENSIONS ARE IN MILLIMETRES.
  2. EARTH LEADS TO BE APPLIED ON THE RHS OF THE EARTH PARKING STUD TO PREVENT LOOSENING OF STUD.

E						REFERENCE DRAWING	DISTRIBUTION CONSTRN. STANDARD westernpower
$\vdash$			$\vdash$	$\vdash$		TITLE	DRAWN: JRR DATE: 01-08-2022 DRG. No.
						HV CABLE TERMINATION RETROSPECTIVE	ORIGINATED CO SCALE NTS MM09-R09
В	21.09.22	DRAWING NUMBER CHANGED AND MORE DETAILS ADDED	CO	NMc	GS	EARTH PARKING STUD INSTALL	CHECKED: NINC
A	23.08.22	ORIGINAL ISSUE	CO	NMc	GS		APPROVED: REV. SHT.
REV	DATE	DESCRIPTION	ORGO.	CHKD.	APRD		GRANT STACY   B





STOCK CODE	PRODUCT NAME	RANGE (Ø)	CONDUCTOR TYPE & PURPOSE
CJ0585	MTRS 10-14	10mm TO 14.3mm	AAC, AAAC FOR JOINING OLD 7/4.50 OR 7/3.75 TO NEW 7/4.75



STOCK CODE	PRODUCT NAME	RANGE (Ø)	CONDUCTOR TYPE & PURPOSE
CJ0586	MTRS 06-11-EHT	6mm TO 11.3mm	AAC, AAAC, ACSR FOR JOINING ARCHERY 6/1/3.0 TO CHLORINE 7/2.50

# <u>INSTALLATION INSTRUCTIONS</u>:-

- CUT CONDUCTOR SQUARE, ALL STRANDS EVEN AND BURR FREE.
- STRAIGHTEN CONDUCTOR IF CURVED.
- CONDUCTOR BRUSH CLEANED, NO GREASE TO BE APPLIED TO CONDUCTOR.
- MARK CONDUCTOR APPROX. 160mm TO CONFIRM INSERTED CORRECTLY.
- INSERT CONDUCTOR TO REACH STOPPER.
- USING 19mm SOCKET SEQUENTIALLY TIGHTEN TOP SHEAR BOLTS FROM BOLT 1 TO BOLT 5/6 UNTIL THE TOP HEADS SHEAR AND THEN FROM BOLT 6/7 TO 10/12.
- REPEAT SHEARING OF BOTTOM SHEAR HEADS IN THE SAME SEQUENCE.
- SHEAR HEADS TO BE FLUSH WITH BODY OF MTRS AFTER INSTALLATION.
- KEEP MTRS IN PLASTIC WRAPPING AND CLEAN UNTIL INSTALLATION, ESPECIALLY SHEAR BOLT THREADS, TO PREVENT INGRESS OF DUST AND TO ENSURE CORRECT TORQUE ACHIEVED.

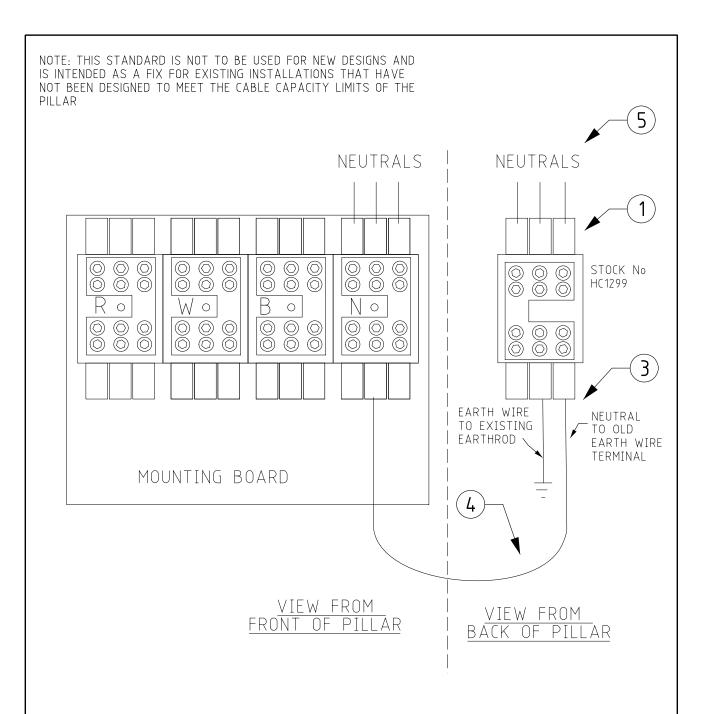
							STRUCTURE	DISTRIBUTION CONS STANDARD	TRN	westernpower
_						TITLE		DRAWN: JRR DA	ATE: 02-04-2019	DRG. No.
							MECHANICAL TENCION			-
1							MECHANICAL LENSION	ORIGINATED NMc SC	ALE NTS	MM09-R24
В	19.11.20	DETAILS OF CJ0586 ADDED	REE	NMc	GS	]		CHECKED CO		
Α	05.04.19	ORIGINAL ISSUE	NMc	CO	GS		ILLI AIN SI LICE (ITTINS)	APPROVED:		REV SHT
REV	DATE	DESCRIPTION	ORGD.	CHKD.	APRO	4		[ GRA	NT STACY	l Bl



DESCRIPTION	RELEVANT DRAWINGS	APPLICATION
BELOW GROUND SERVICE MINI PILLAR NEUTRAL (EXTRA) FITTING REQUIREMENT	MM10-R31	REPLACEMENT OF EXISTING FB0059. NOT FOR NEW INSTALLATIONS IN GREENFIELD OR BROWNFIELD, MAINTENANCE ONLY.
BELOW GROUND SERVICE MINI PILLAR INSTALLATION GUIDE	MM10-U08	REPLACEMENT OF EXISTING FB0059. NOT FOR NEW INSTALLATIONS IN GREENFIELD OR BROWNFIELD, MAINTENANCE ONLY.
MINI & UNI PILLAR EXTENSION	MM10-EXT	PILLAR CABLE EXTENSION DRAWING USED IN THE EVENT GROUND LEVEL HAS BEEN RAISED.

								STRUCTUR	) E	DISTRIBUTION CO	JNSTRN.	-59	westernpower
								SIRUCTUR	<u> </u>	STANDAR			Megreilihomei
1						TITLE					T		lane ve
										DRAWN: JRR	DATE: 18	-11-2016	DRG. NO.
c	05.02.24	PILLAR EXTENSION DETAILS ADDED. DRAWINGS REMOVED.	тсм	SH	co	i	DEL OV	CDOLIND	CEDIVICEC	ORIGINATED: CO	SCALE	NTS	MM10
		MINI PILLAR DETAILS ADDED	NMc	CO	GS	İ	BELLAM	GKOOND	SERVICES	CHECKED: JC			MM10
Α	01.12.16	DRIGINAL ISSUE	CO	JC	GS					APPROVED:		CTACN	REV SHT
REV	DATE	DESCRIPTION	ORGD.	CHKD.	APRO					l ut	RANT S	STALY	





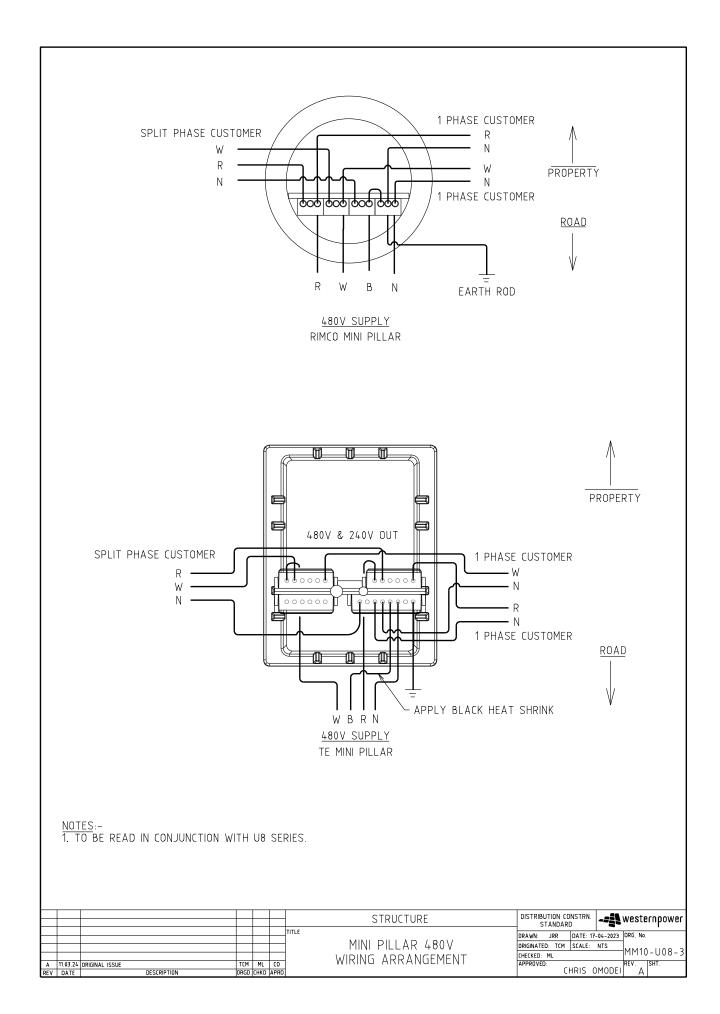
## NOTES:

- 1. FIX EXTRA NEUTRAL LINK TO BACK OF PANEL BEHIND EXISTING M.E.N LINK
- 2. USING INSULATED GLOVES AND TOOLS REMOVE EARTH STAKE CONDUCTOR FROM M.E.N LINK AND TEST BETWEEN EXISTING M.E.N LINK AND REMOVED CABLE END TO CONFIRM NO POTENTIAL DIFFERENCE.

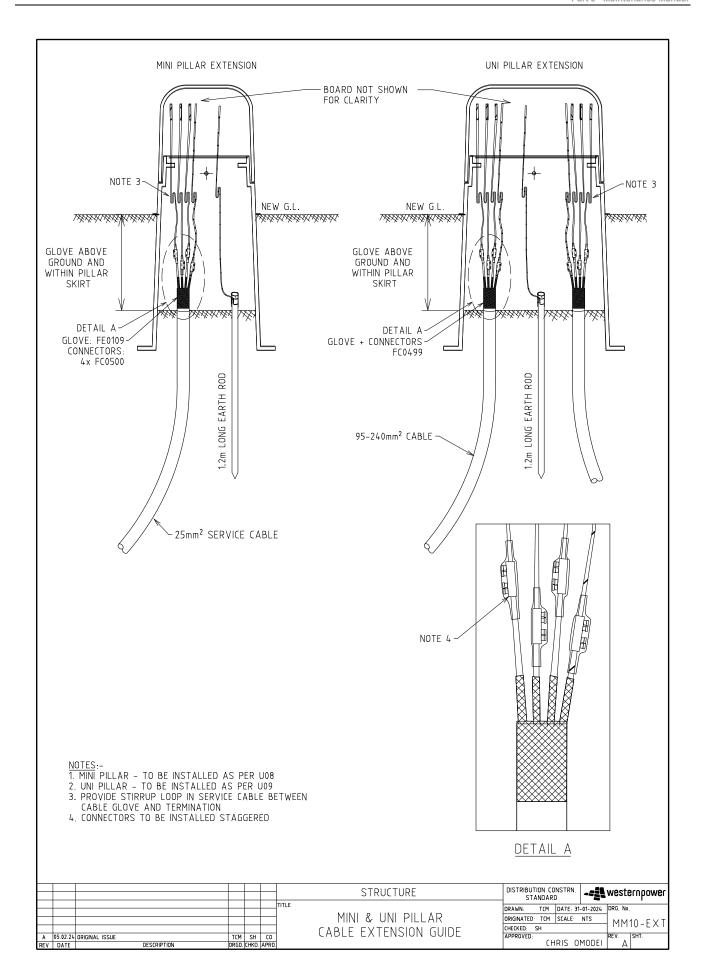
  NOTIFY WESTERN POWER IF POTENTIAL EXISTS.
- 3. CONNECT REMOVED EARTH CABLE END TO BOTTOM MIDDLE TERMINAL OF NEW LINK.
- 4. CONNECT A 25/35mm NEUTRAL CONDUCTOR (BLACK) BETWEEN OLD EARTH TERMINAL IN EXISTING LINK AND BOTTOM RIGHT TERMINAL IN NEW M.E.N LINK.
- 5. THEN CONNECT EXTRA NEUTRALS TO THE NEW LINK.

							REFERENCE DRAWING	DISTRIBUTION CO STANDARI	INSTRN. D	-# <u></u>	westernpower
						TITLE	MINI DILLAD NELITDAL (EVTDA)		DATE: 15-		
	04 07 47						EITTING DENLIDEMENT	CHECKED: REE	Joernee.	.,,,,	MM10-R31
REV.	26.07.17 DATE	ORIGINAL ISSUE DESCRIPTION	ORGD	CHKD.	APRO		THE RECORDER TO	APPRUVEU:	GRANT	STACY	A SHI









DRG. No.	DESCRIPTION
MM11-S13	MOUNTING ARRANGEMENT FOR STEEL STREETLIGHT COLUMNS
MM11-S14	MOUNTING ARRANGEMENT FOR WOOD OR CONCRETE POLE ON BARE AERIAL CONNECTION
MM11-S15	MOUNTING ARRANGEMENT FOR WOOD OR CONCRETE POLE ABC CONNECTION
MM11-S16	STEEL COLUMN - DOUBLE INSULATED (CLASS 2)
MM11-S17	WOOD OR CONCRETE POLE DOUBLE INSULATED - (CLASS 2)
MM11-S18	WOOD OR CONCRETE POLE SINGLE INSULATED - (CLASS 1)

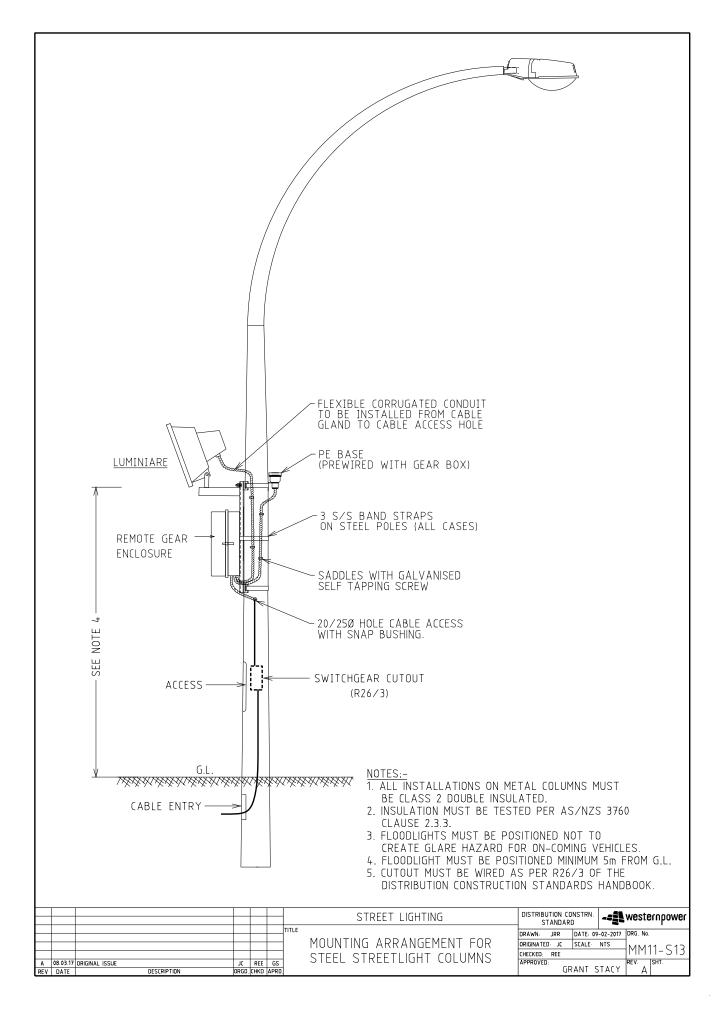
STOCK CODE	DESCRIPTION
HL3351	1000W FIXTURE
GL1892	1000W CONTROL GEAR BOX
GL1886	1000W MH GLOBE
HL3350	400W FIXTURE
GL1891	400W CONTROL GEAR BOX
GL1890	400W MH GLOBE
GL1871	400W HPS GLOBE
GF1803	CONCRETE FUSEHOLDER
GF1802	WOODEN FUSEHOLDER
HL5557	PE CELL
GF0550	FUSE
GL1850	BRACKET FOR WOODEN POLES
GL1851	BRACKET FOR METAL POLES

NOTES:
1. ITEM FOR RE-USE TO BE CONFIRMED IN WORKING ORDER (NO 'REPLACE' DEFECTS) BEFORE ATTACHMENT TO POLE (REFER TO DEFECT SEVERITY CATALOGUE).

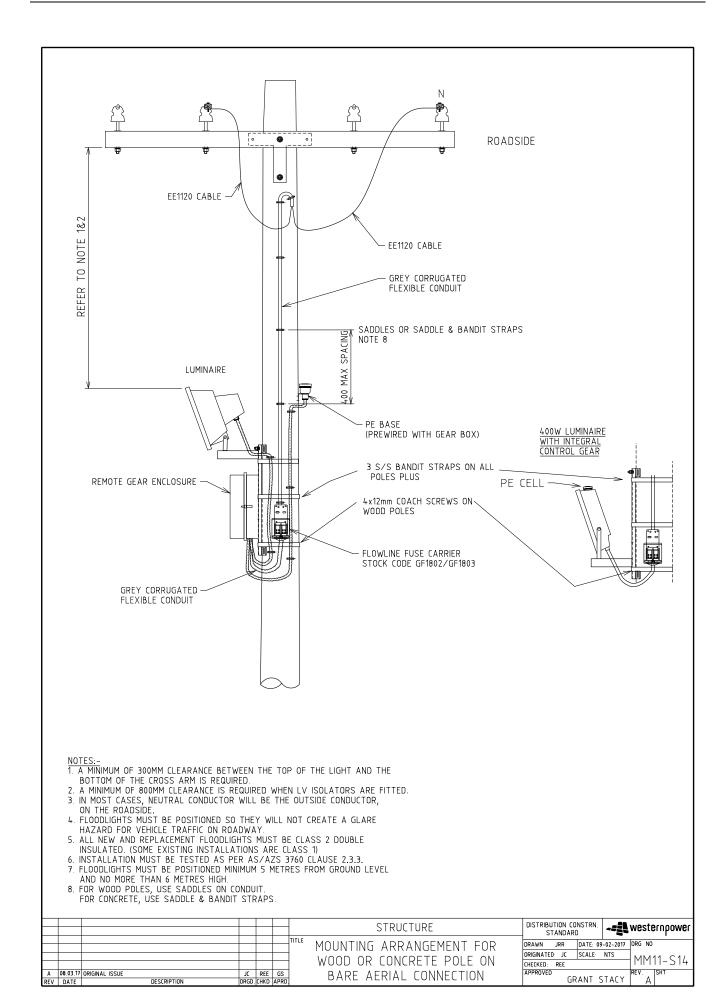
2. APPROPRIATE DRAWING TO BE USED DEPENDING ON EXISTING POLE CONFIGURATION.

						STRUCTURE	DISTRIBUTION CONSTRN. STANDARD	-=== westernpower
							DRAWN JRR DATE O ORIGINATED JC SCALE	9-02-2017 DRG. NO.
A REV	08.03.17 DATE	ORIGINAL ISSUE DESCRIPTION	JC ORGD.	REE CHKD.	GS APRO	]	CHECKED: REE APPROVED: GRANT	STACY A SHT.

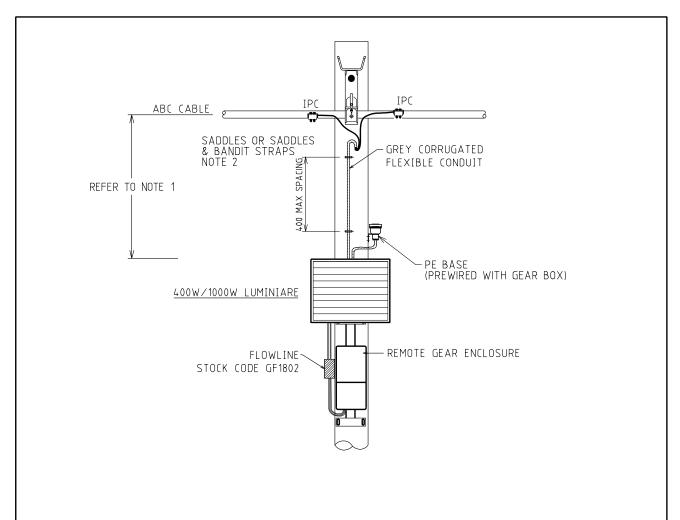


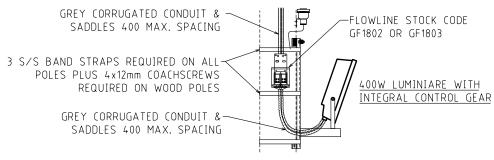










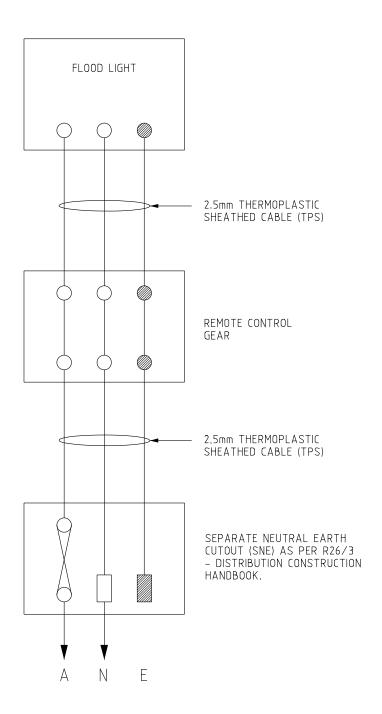


## NOTES

- 1. A MINIMUM OF 300mm CLEARANCE BETWEEN THE TOP OF
- THE LIGHT AND THE BOTTOM OF THE HANGER ARM.
  2. FOR WOOD POLES, USE SADDLES ON CONDUIT.
  FOR CONCRETE, USE SADDLES AND BANDIT STRAP.

							STRUCTURE	DISTRIBUTION CONSTRN.	westernpower
							STRUCTURE	STANDARD	-=== Me2rellihomei
						TITLE	MOLINTING ADDANGEMENT FOD	DRAWN: JRR DATE: 09	-02-2017 DRG. NO.
							MOUNTING ARRANGEMENT FOR		
							WOOD OD CONCDETE DOLE	ORIGINATED JC SCALE	MM11_ S 15
							WOOD OR CONCRETE POLE	CHECKED: REE	11 11 11 -5  5
Α	08.03.17	ORIGINAL ISSUE	JC	REE	GS		ABC CONNECTION	APPROVED:	REV. SHT.
RFV	DATE	DESCRIPTION	ORGO	CHKD	APRO	1	ADC COMMECTION	GRANT S	STACY   A



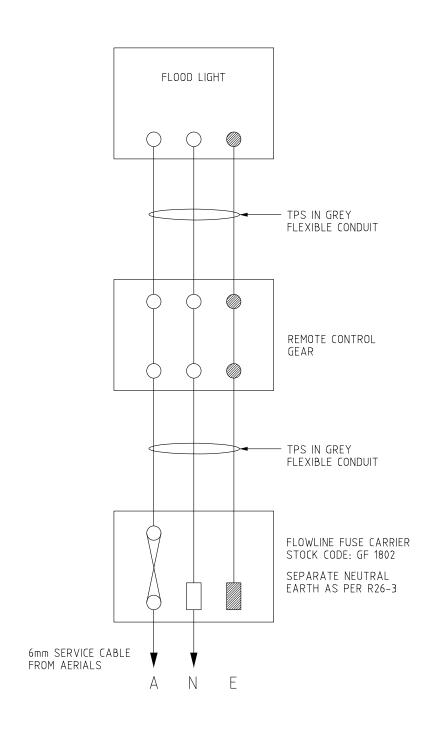


## NOTES

- 1. ALL STEEL COLUMN INSTALLATIONS MUST BE DOUBLE INSULATED (CLASS 2).
- 2. ALL EXPOSED TPS NEEDS TO BE INSTALLED IN GREY FLEXIBLE CONDUIT AND MOUNTED TO COLUMN WITH GALVANISED SELF TAPPING DRILL SCREWS AND SADDLES.
- 3. EARTH TERMINALS ARE A TERMINATION POINT FOR EARTH CABLES ONLY AND **MUST NOT** BE BONDED TO THE STEEL WORK AT ANY POINT.

						STRUCTURE	DISTRIBUTION CONSTRN.	-== westernpower
						STRUCTURE	STANDARD	-=== westernhower
						TITLE		
-	_				-	1	DRAWN: JRR DATE: 09	9-02-2017 DRG. NO.
						I CTEFL COLLIMNE DOLIBLE INICIILATED		
ı						STEEL COLUMN - DOUBLE INSULATED	ORIGINATED JC SCALE	NIS MANA11 C1/
-					-	•	CHECKED: REE	MM11-S16
I A	08.03.1	7 DRIGINAL ISSUE	l JC	REE	GS	(CLASS Z)	APPROVED:	REV SHT
REV	DATE	DESCRIPTION	ORGO	CHKD	APRD.		GRANT S	STACY   A

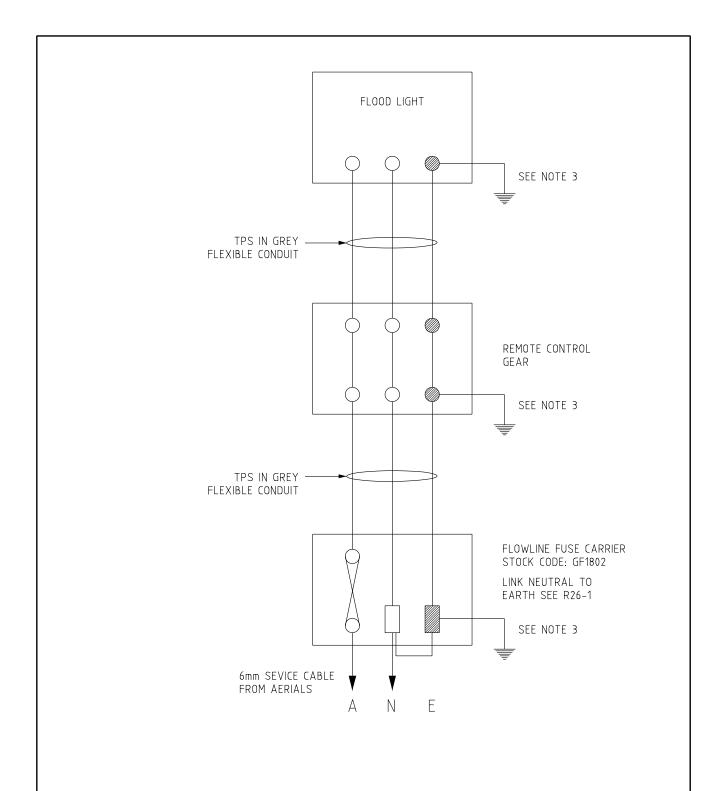




- 1. ALL STEEL POLE INSTALLATIONS MUST BE DOUBLE INSULATED (CLASS 2).
  2. ALL EXPOSED TPS NEEDS TO BE INSTALLED IN GREY FLEXIBLE CONDUIT AND MOUNTED TO POLE WITH GALVANISED SELF TAPPING DRILL SCREWS AND SADDLES.
  3. GREY FLEXIBLE CONDUIT MUST BE BANDIT STRAPPED TO CONCRETE POLES.

						STRUCTURE	DISTRIBUTION CONSTRN. STANDARD	-={!\	esternpower/
						TITLE	DRAWN: JRR DATE: 0	9-02-2017 D	RG. NO.
						WOOD OR CONCRETE POLE	ORIGINATED JC SCALE	NTS	MM11-S17
						DOUBLE INSULATED - (CLASS 2)	CHECKED: REE		
Α	08.03.17	ORIGINAL ISSUE	JC	REE	GS	DOODLE INSOLATED (CLASS Z)	APPROVED:		EV. SHT.
REV	DATE	DESCRIPTION	ORGO.	CHKD.	APRO		GRANT	STACY	Αl





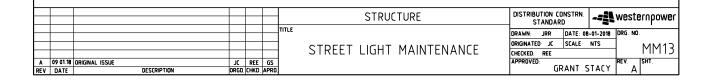
# NOTES:

- 1. CLASS 1 BONDED TO METAL BODY OF FIXTURE. CLASS 2 MUST NOT BE BONDED.
- 2. IF EXISTING FIXTURE AND CONTROL GEAR ARE UNSERVICEABLE, A NEW CLASS 2 INSTALLATION IS REQUIRED PER MM11-S17.
- 3. EARTHS MUST BE BONDED TO STEEL BODY OF FITTING.

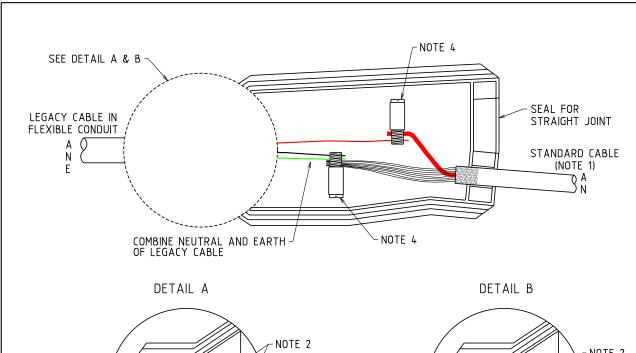
						STRUCTURE	DISTRIBUTION CONSTRN. STANDARD	-== westernpower
A REV	08.03.17 DATE	ORIGINAL ISSUE DESCRIPTION	JC ORGD. (	REE HKD.	GS APRO	WOOD OR CONCRETE POLE	ORIGINATED JC SCALE CHECKED REE APPROVED:	9-02-2017 DRG. NO.  NTS

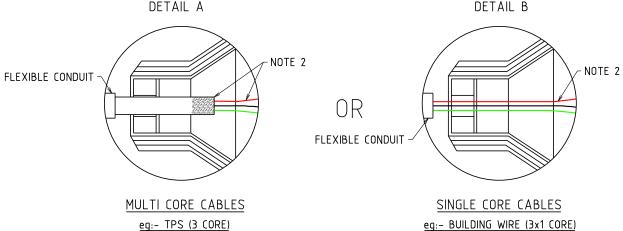


DESCRIPTION	RELEVANT DRAWINGS
STREET LIGHT CUTOUT SINGLE PHASE SUPPLY FOR SINGLE INSULATED (CLASS 1) LUMINAIRES - 1	MM13-R26-1
STREET LIGHT CUTOUT SINGLE PHASE SUPPLY FOR SINGLE INSULATED (CLASS 1) LUMINAIRES - 2	MM13-R26-2









LEGACY	CABLE	STANDARD CABLE				
CABLE TYPE	CABLE RANGE	STANDARD CABLE				
2 CORE	2.5 - 16mm²	16mm <sup>2</sup> 1 CORE HELICAL SCREEN				
3 CORE	2.5 - 16mm²	16mm <sup>2</sup> 1 CORE HELICAL SCREEN				
2x1 CORE	2.5 - 16mm²	16mm <sup>2</sup> 1 CORE HELICAL SCREEN				
3x1 CORE	2.5 - 16mm²	16mm <sup>2</sup> 1 CORE HELICAL SCREEN				

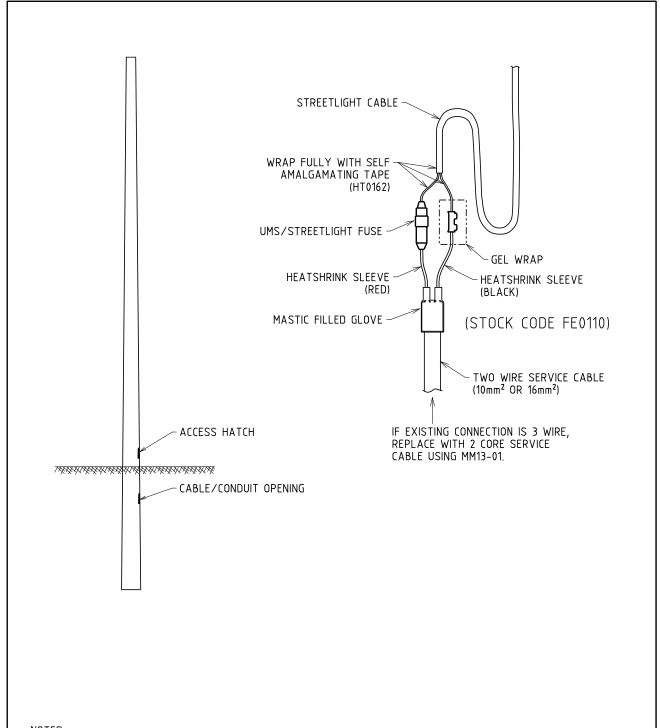
# NOTES:-

- 1. WHEN STANDARD CABLE IS JOINTED TO LEGACY CABLE AND TERMINATED, I.E. INTO A PILLAR, STREETLIGHT ETC., THEN ATTACH A CAUTION TAG TO THE CABLE TERMINATION STATING "CONNECTED TO LEGACY CABLE".
- 2. ABRADE ALL INSULATION ON CORES AND SHEATHS THAT ENTER JOINT.
- 3. REFER TO COMMISSIONING INSTRUCTION 2.10.
- 4. THE SMALLER CROSS SECTIONAL AREA CORE(S) SHALL BE PLACED IN THE BOTTOM OF THE CONNECTOR.

							STRUCTUR	С	DISTRIB	UTION CO	ONSTRN.	-50	westernpower
							STRUCTUR	E		TANDAR		/**E	Mezreilihomei
			1	l		TITLE							
			$\vdash$			1"""			DRAWN:	JRR	DATE: 12-	-10-2018	DRG. No.
-			_		<u> </u>	1			ORIGINATE	D CO	SCALE	NTS	1
						11 ECVCA	CIDEELLICHI	LVBIE DEDVID	_				ŀMM13-01
						LLUACI	SIKLLILIUIII	CADLL KLFAIK	CHECKED:	REE			
Α	10.12.18	ORIGINAL ISSUE	CO	NMc	FK	1			APPROVE				REV SHT
REV	DATE	DESCRIPTION	ORGD.	CHKD	APRO	4			1	F	ARHAN	KHAN	l Al



STOCK CODE: FJ0241



# NOTES:-

- 1. APPLICATION FOR USE WITH COLUMNS THAT CANNOT ACCOMMODATE A STANDARD CUT OUT BOX.
- 2. FOR CLASS II LED LUMINAIRE INSTALLATION ONLY.
- 3. THIS DRAWING REPRODUCED FROM DRG. No. SL75-0009. 4. DOUBLE 1.5mm CONDUCTOR OVER TO FIT INTO CONNECTORS.

						-	MAINTENANCE MANUAL	DISTRIBUTION CONSTRN. STANDARD westernpower
				_		TITLE	ELECTRICAL CONNECTIONS FOR	DRAWN JRR DATE 15-05-2017 DRG No.  ORIGINATED CB SCALE NTS
В	29.10.19	DRAWING NUMBER & CONNECTION DETAILS CHANGED	REE	CO	GS	1	NARROW STYLE STREETLIGHT	CHECKED: MM13-02
Α	23 05 17	ORIGINAL ISSUE	СВ		GS	1	COLUMN	APPROVED REV SHT
REV	DATE	DESCRIPTION	ORGD.	CHKD.	APRD	4	COLOMIN	GRANT STACY   B



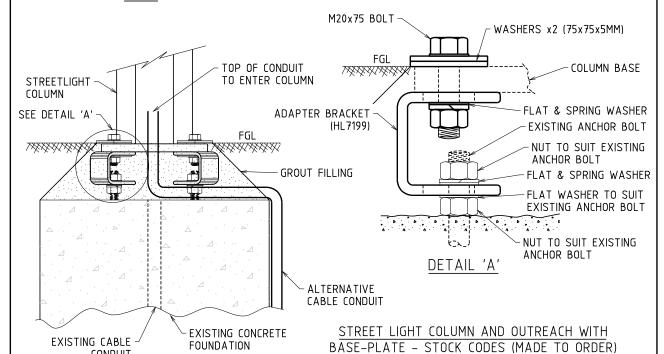
# ADAPTER BRACKET (HL7199)

# INSTALLATION INSTRUCTIONS

- 1. REMOVE EXISTING COLUMN AND EXISTING NUTS
- CLEAN ANCHOR BOLT THREADS WITH WIRE BRUSH.
- 3. ASSESS CONDITION OF ANCHOR BOLTS. CONSULT ENGINEERING IF ANCHOR BOLTS ARE;
  - SMALLER THAN 16MM
  - EXCESSIVELY CORRODED, THREAD NOT SUITABLE. BEND IS GREATER THAT 5 DEG.
- 4. IF ANCHOR BOLTS ARE IN GOOD CONDITION, APPLY COLD GALV OVER THREAD
- 5. ATTACH ADAPTER BRACKETS TO THE EXISTING ANCHOR BOLTS USING SUITABLE NUTS x2, WASHERS x2 AND SPRING WASHER, SEE DETAIL 'A
- LEVEL BRACKETS USING WASHER/NUTS BELOW ADAPTER BRACKETS.
- 7. BRACKETS CAN BE ORIENTATED TO SUIT ANY EXISTING ANCHOR BOLT DIMENSION/POSITION. ENSURE BRACKET FACES INWARDS AS PER ELEVATION VIEW.
- 8. PREFERENCE TO INSTALL CABLE IN EXISTING CONDUIT. IF NOT POSSIBLE, USE ALTERNATIVE CONDUIT POSITION AS INDICATED.
- 9. ATTACH THE COLUMN WITH BASE PLATE TO THE ADAPTER BRACKET USING NUTS, BOLTS AND WASHERS SUPPLIED WITH HL7199, SEE DETAIL 'A'.

STREETLIGHT COLUMN BASE PLATE  $^ackslash$  SEE DETAIL 'A'

PLAN



ELEVATION

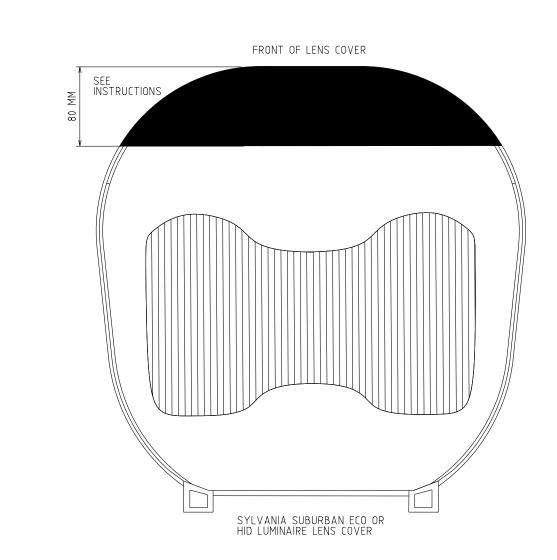
CONDUIT

NOTES:-1. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.

	FINISH	POLE HEIGHT	SINGLE OUTREACH	DOUBLE OUTREACH
	GALVANISED	10.5m	CW4111	CW4112
	GALVANISED	12.5m	CW4113	CW4114
	DOWDED COATED	10.5m	CW4115	CW4116
	POWDER COATED	12 Sm	CW4117	CW4118

$\perp$									
							STRUCTURE	DISTRIBUTION CONSTRN	-== westernpower
							STRUCTURE	STANDARD	-=== Mestellihowei
						TITLE			
$\vdash$	1					1		DRAWN JRR DATE 22	2-05-2020 DRG No.
-	+				_	-	LEGACY STREETLIGHT COLUMN	ORIGINATED SA SCALE	NTS 14147 07
1							LLGACT STREETEIGHT COLOTIN	ORIGINATED SA SCALE	MM13-03
							WITH CONCRETE FOUNDATION	CHECKED: CO	כט–כוויון
Α	26 11.2	0 ORIGINAL ISSUE	SA	CO	GS		WITH CONCILL LOUNDATION	APPROVED:	REV SHT
REV	DATE	DESCRIPTION	ORGO.	CHKD.	APRO	II.		GRANT S	STALY   A





# NOTES:-

1. APPLICABLE TO THE SYLVANIA SUBURBAN ECO AND HID SERIES OF LUMINAIRES -HL6230 (42W CFL), HL6189 (70W HPS), HL6190 (80W MV).

# INSTRUCTIONS:-

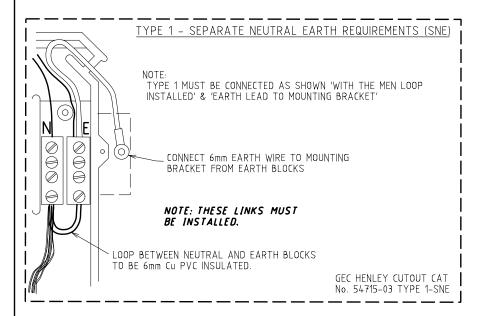
- 1. REMOVE THE LENS COVER FROM THE LUMINAIRE. 2. CLEAN AND DRY THE INSIDE OF THE LENS COVER.
- 3. MASK OFF THE OUTSIDE OF THE AREA TO BE PAINTED.
- 4. PAINT THE INSIDE OF THE LENS COVER USING GALMET (QP3225) TO THE DIMENSIONS AS SHOWN.
- 5. AVOID PAINT OVERSPRAY TO OTHER AREAS AND THE OUTSIDE OF THE LENS COVER.

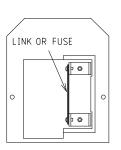
EQUIVALENT TO THE OBSOLETE HL0590



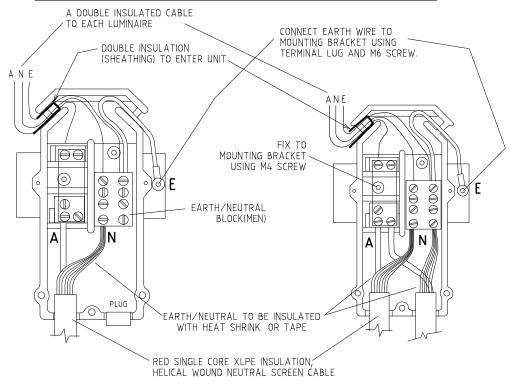


# FOR SINGLE INSULATED CLASS 1 EQUIPMENT ONLY





## VIEW ON INSIDE OF FRONT COVER TYPE 2 - COMMON NEUTRAL EARTH (CNE)



SINGLE SERVICE SUPPLY

LOOPED SERVICE SUPPLY

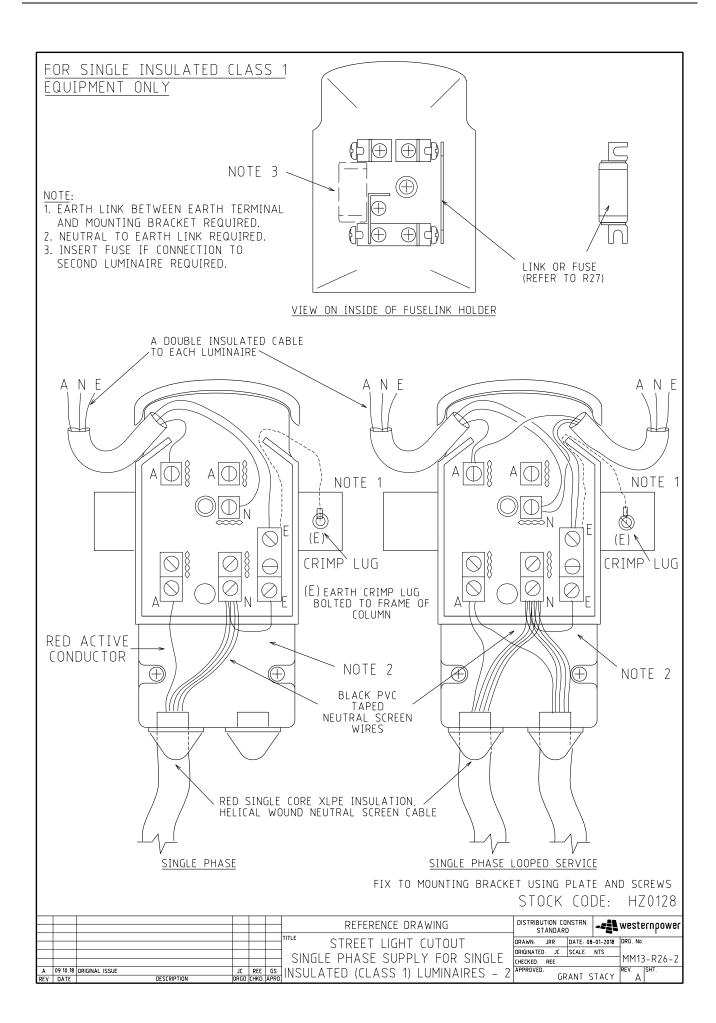
<u>SUPERSEDED TYPE 2 UNIT USE TYPE 1 - SNE ABOVE OR</u>

SEE R26/2 FOR REPLACEMENT

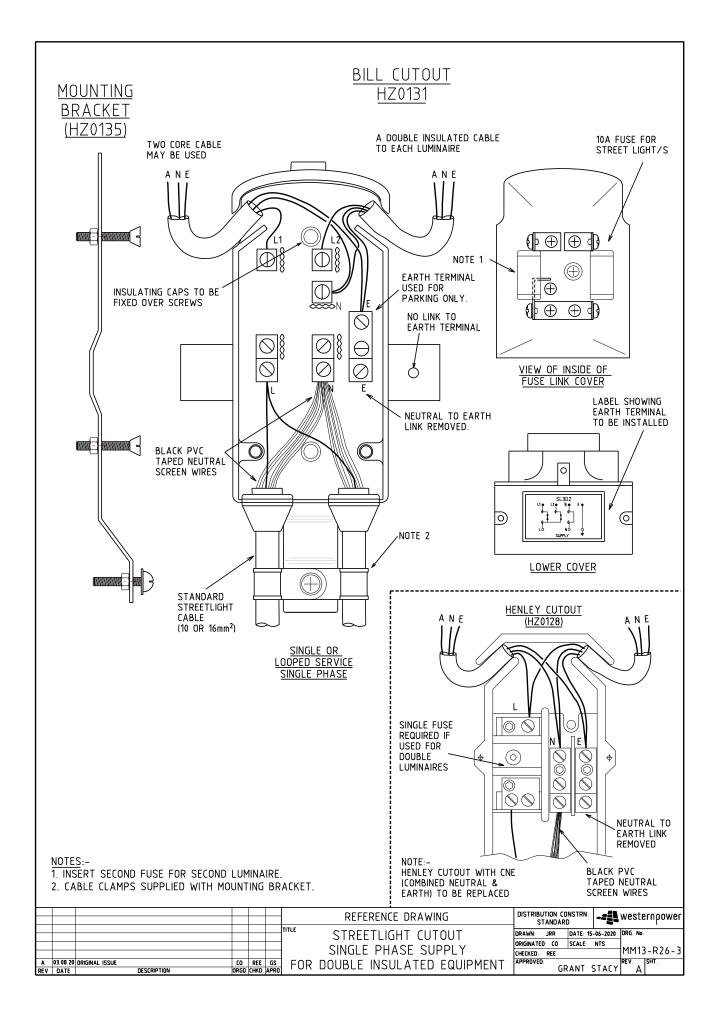
GEC HENLEY STREET LIGHTING SERVICE CUTOUT CAT No. 8DE 54715-04 TYPE 2

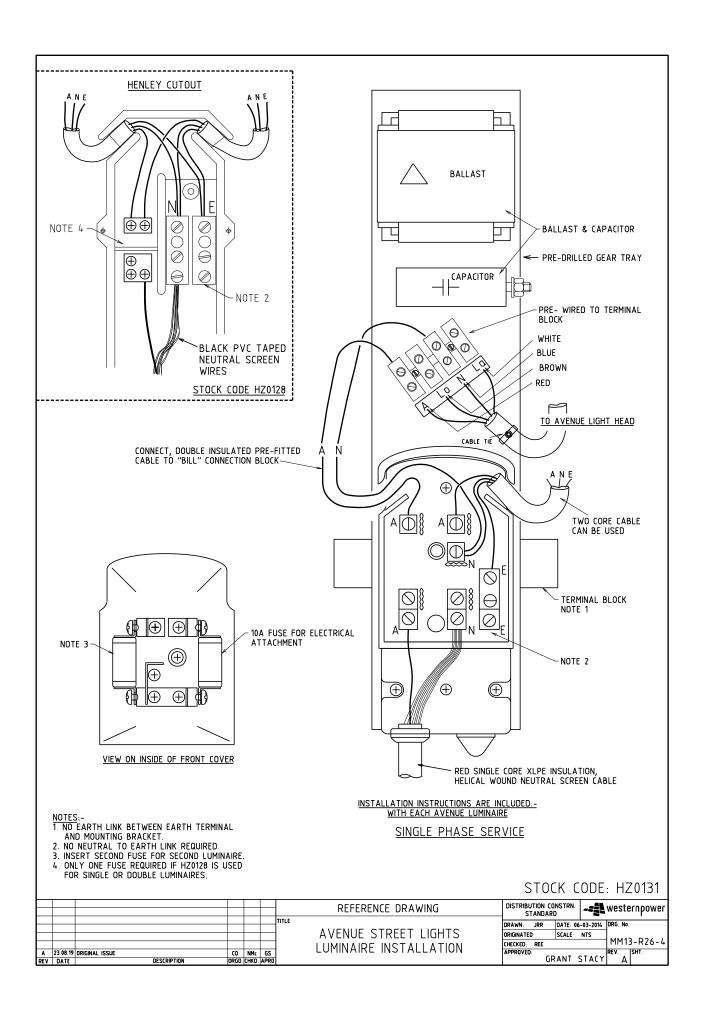
					$\exists$	REFERENCE DRAWING	DISTRIBUTION C	ONSTRN. D	-= <u>{</u> {	westernpower
$\vdash$	-		$\vdash$		-	TITLE STREET LIGHT CUTOUT	DRAWN: JRR	DATE: 08	-01-2018	DRG. No.
					4	SINGLE PHASE SUPPLY FOR SINGLE	ORIGINATED JC CHECKED REE	SCALE	NTS	MM13-R26-1
A REV		DRIGINAL ISSUE DESCRIPTION		REE GS		INSULATED (CLASS 1) LUMINAIRES - 1	APPROVED:	RANT S	TACY	REV. SHT.



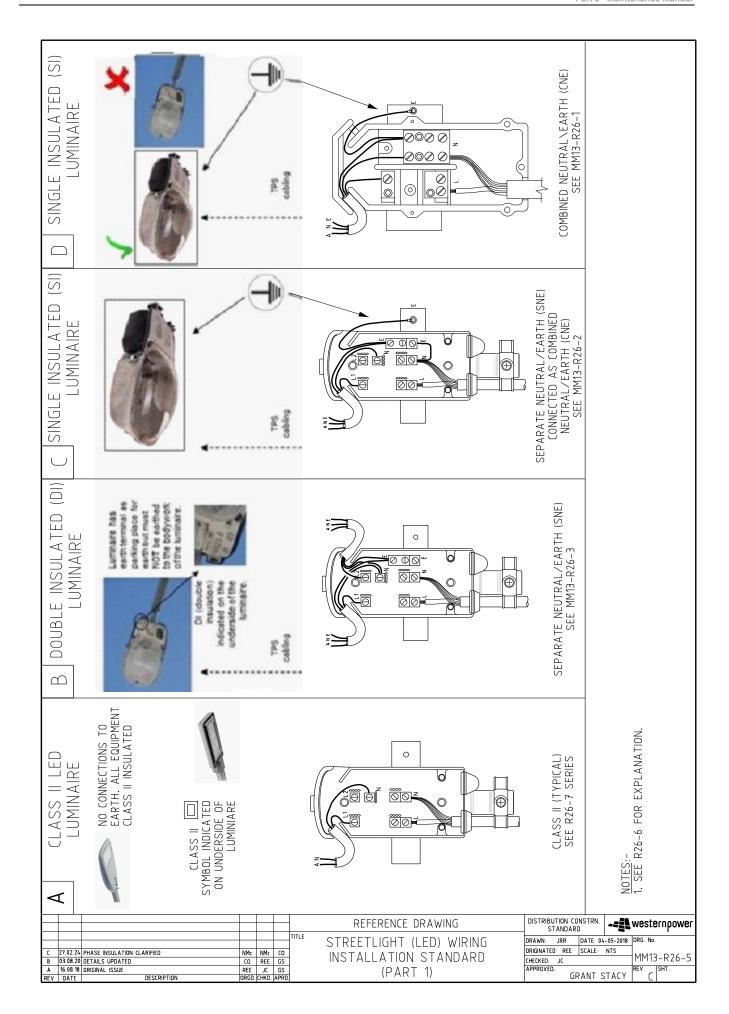








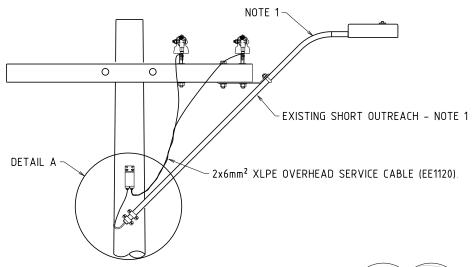


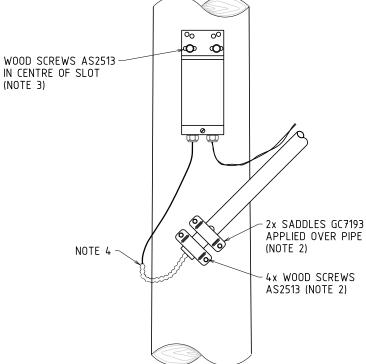




## PURPOSE -

INSTALLING NEW LED LUMINAIRE ON LEGACY MINOR ROAD - SHORT (2m LONG) STREETLIGHT BRACKET WHERE BRACKET PIPE DIAMETER IS TOO SMALL TO FIT CABLE TOGETHER WITH 12mm BOLT.





- 1. ATTACHED TO CROSSARM OR TWISTED STRAPS SIMILAR S20.
- 2. ATTACH 2x SADDLES GC7193 WITH 4x WOOD SCREWS AS2513 STRAIGHT INTO THE POLE, I.E. PERPENDICULAR TO POLE FACE.

  3. INSTALL FUSE BOX GF1804 DIRECTLY TO POLE OR ONTO
- EXISTING FUSE SUPPORT.
- 4 INSTALL 20mm FLEXIBLE CONDUIT OR HOSE (APPROXIMATELY 300mm LONG) OVER CONDUCTOR AND INTO PIPE.

DETAIL A

					STRUCTURE	DISTRIBUTION CONSTRN. STANDARD	-== westernpower
					""LEGACY MINOR ROAD - SHORT STREETLIGHT BRACKET ON WOOD	DRAWN: JRR DATE: 14 ORIGINATED: CO SCALE: CHECKED: NMc	ORG. No.  NTS  MM13-S02-1
A REV.	 ORIGINAL ISSUE  DESCRIPTION	CO ORGD	NMc CHKD	GS APRD		APPROVED: GRANT S	STACY A SHT.

