



Distribution Construction Standard Handbook

Low Voltage Underground

Part 05 (U)



General Notes

All equipment shall be installed in accordance with the manufacturer's instructions supplied with the equipment kit to which they relate.

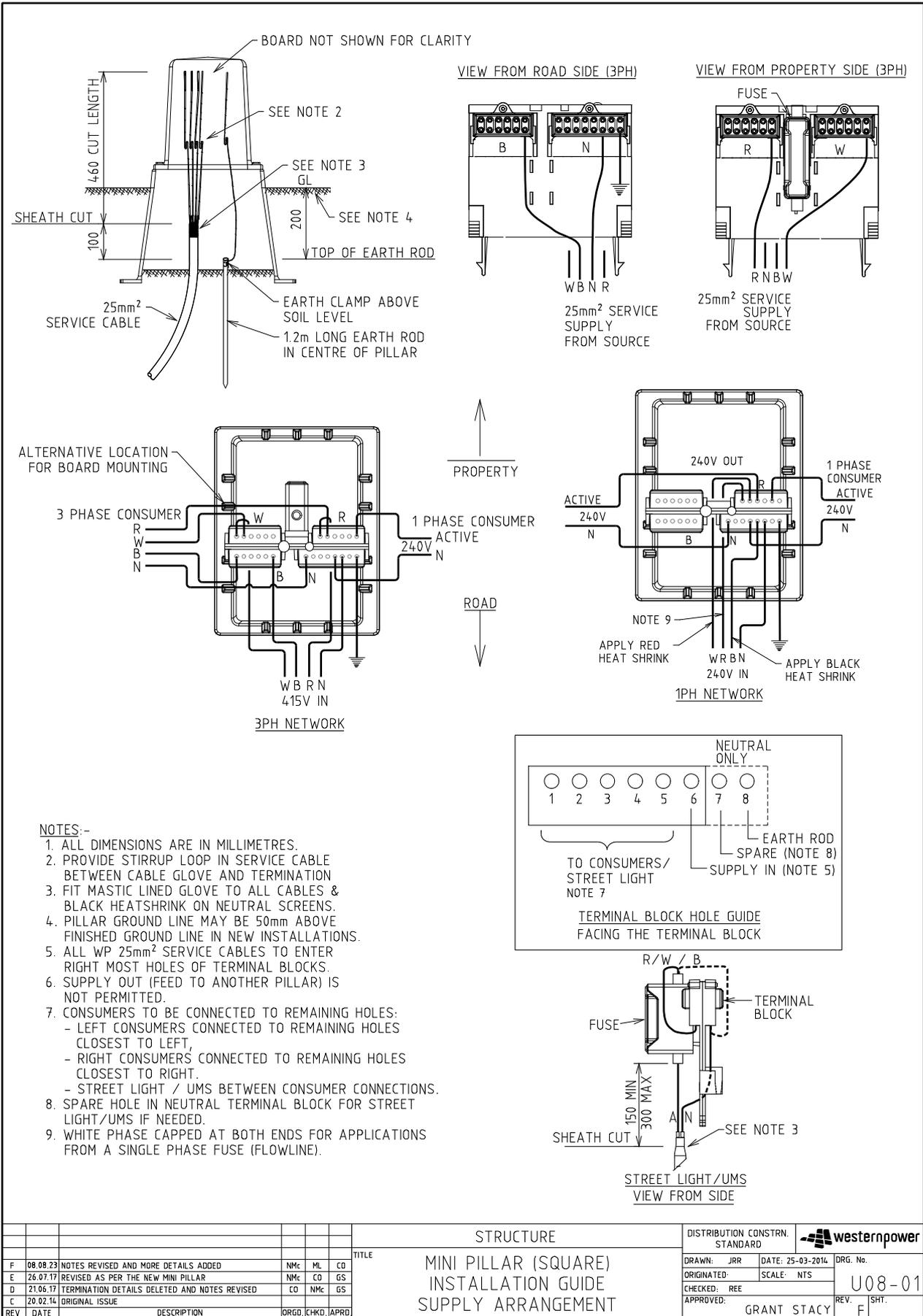
Installer identification tags are required where provided as part of the equipment kit. The installer identification tags shall be labelled and fitted to the joint or termination equipment as per drawing R39.

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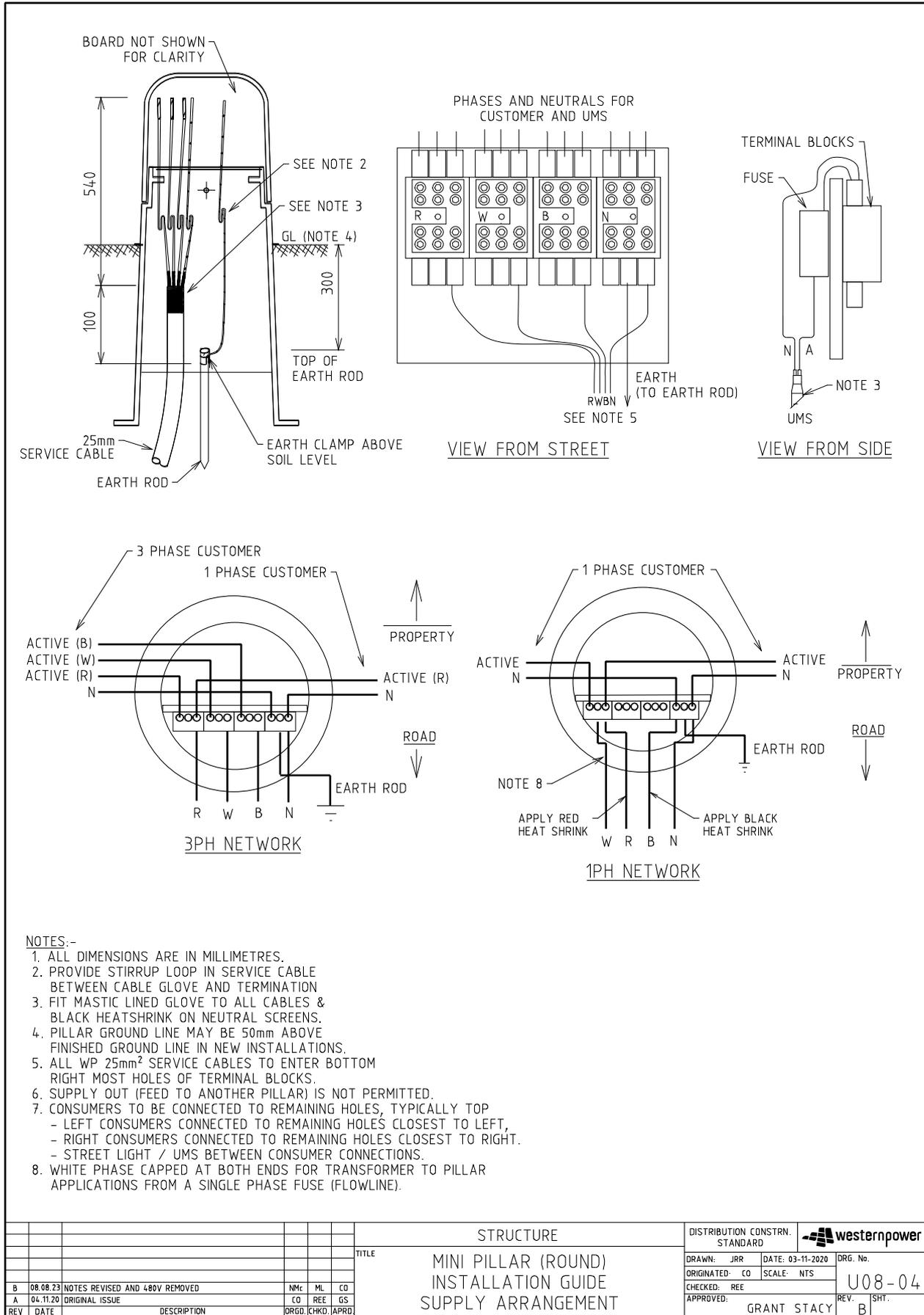
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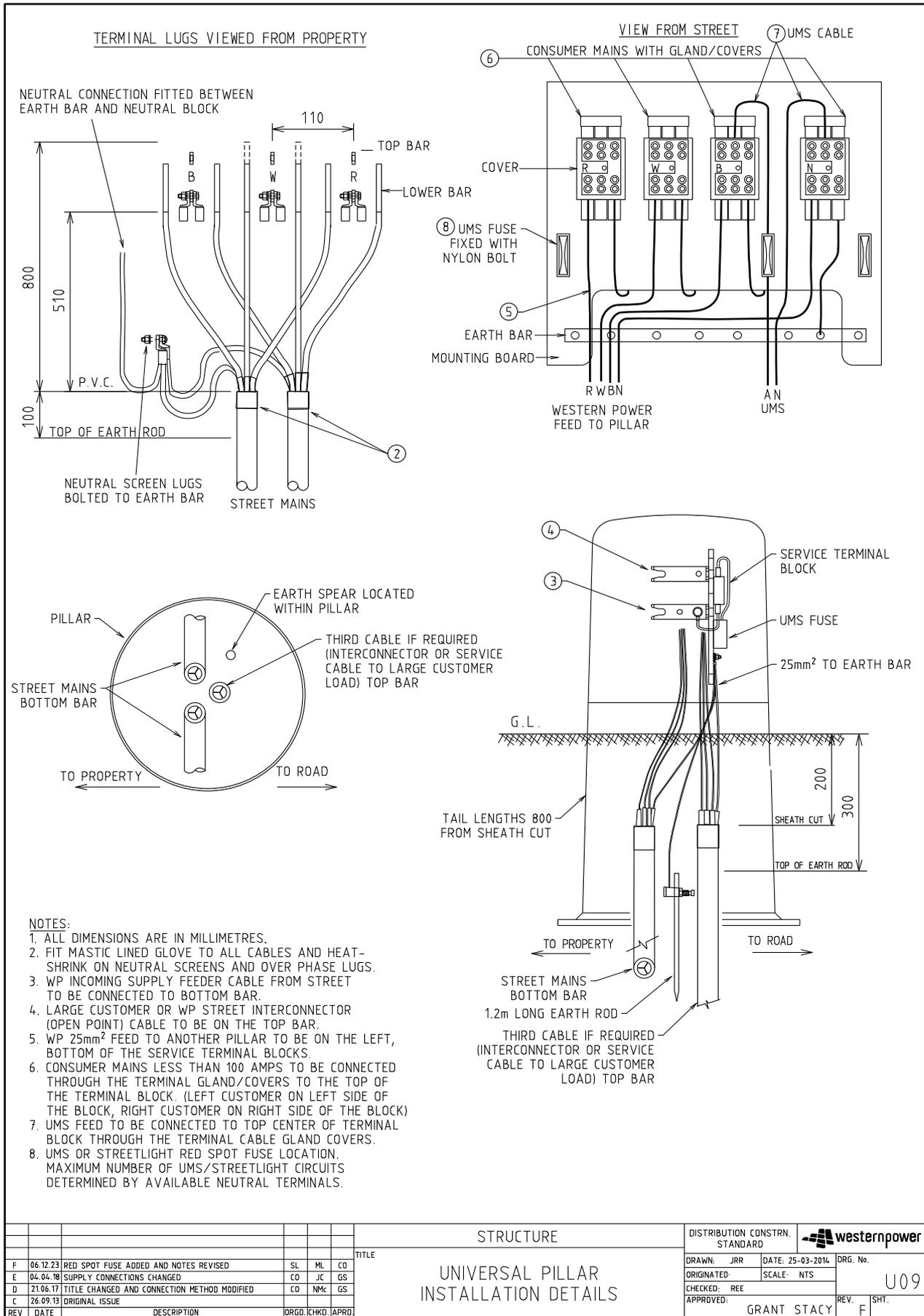
Drawing Register

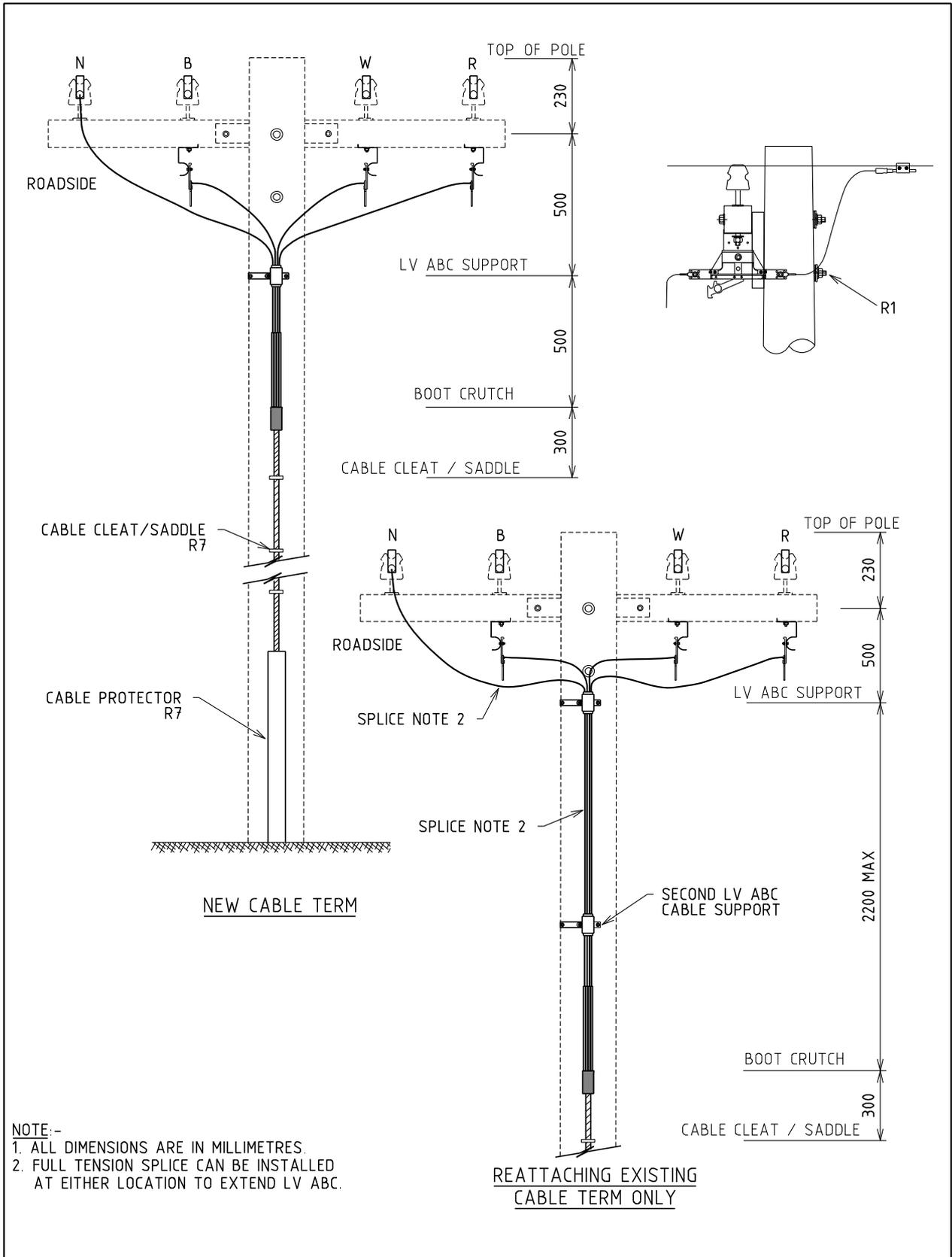
Number	Revision	Description
U08-01	F	Mini Pillar Installation Guide with 3Ph supply Arrangement
U08-04	B	Mini Pillar (Round) Installation Guide Supply Arrangement
U9	F	Universal Pillar, Installation Details
U15	B	Cable to LV Isolators, Cross-arm & Cable length detail
U16-1	D	120 to 240mm ² Cable to LV Bare, Direct Connected
U16-2	A	120 to 240mm ² Cable to LV ABC, Direct Connection
U17	B	120 to 240mm ² Cable to LV ABC, Fused Connected
U18	B	25 mm ² Cable to ABC
U19/1	C	25 mm ² Cable to Open Aerial
U19/2	C	25 mm ² 4 Core to 1 Phase Open Aerial
U19/3	G	Transformer Pole to Pillar on Customer's Property
U20	B	Wall Mounted Box, 100Amp
U21	B	Wall Mounted Box, 200 Amp
U23-1	F	Single Phase Supplied UMS Pit for one Single Phase UMS
U23-2	A	Unmetered Supply Mini Pillar Termination Details
U23-3	B	Three Phase Supplied UMS Pit for up to Three Phase UMS
U27/1	A	LV Cable to Fuse Switch
U27/2	A	LV Cable to Fuse Switch Installation Instructions
U30	F	Below Ground Service Pit (BGSP)
U31	B	Wall Box Surface Mounted on Customer's Wall
U32	B	Wall Box Semi-Recess Mounted on Customer's Wall
U33	B	Wall Box Mounted Inside Customer's Enclosure on Customer's Wall



				STRUCTURE			DISTRIBUTION CONSTR. STANDARD					
				TITLE							DRAWN: JRR DATE: 25-03-2014 DRG. No.	
				MINI PILLAR (SQUARE)							ORIGINATED: SCALE: NTS	
				INSTALLATION GUIDE							CHECKED: REE	
				SUPPLY ARRANGEMENT							APPROVED: GRANT STACY	
											U08-01	
											REV. F SHT.	
REV	DATE	DESCRIPTION	DRG	CHKD	APRD							
F	08.08.23	NOTES REVISED AND MORE DETAILS ADDED	NMC	ML	CO							
E	26.07.17	REVISED AS PER THE NEW MINI PILLAR	NMC	CO	GS							
D	21.06.17	TERMINATION DETAILS DELETED AND NOTES REVISED	CO	NMC	GS							
C	20.02.14	ORIGINAL ISSUE										

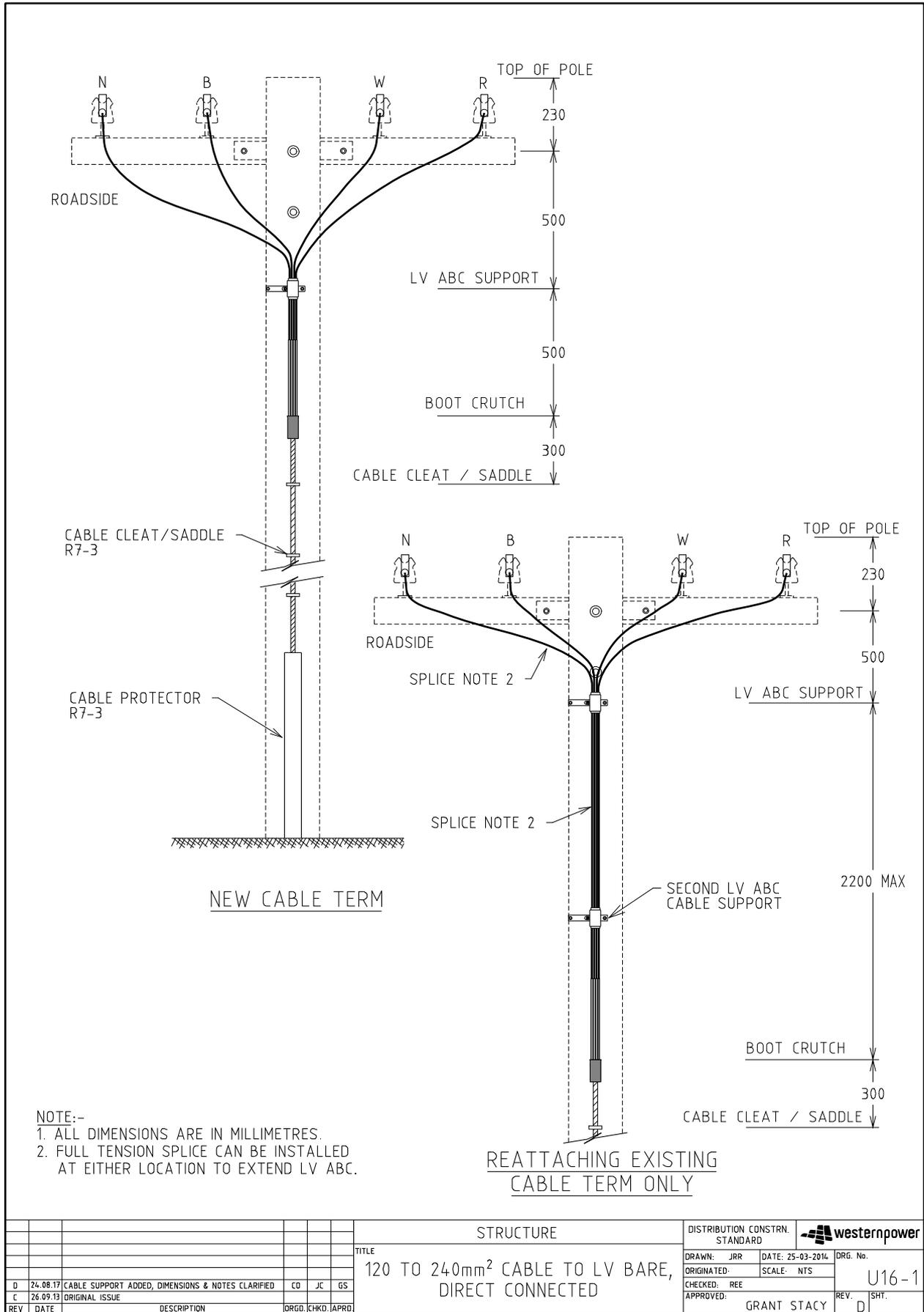


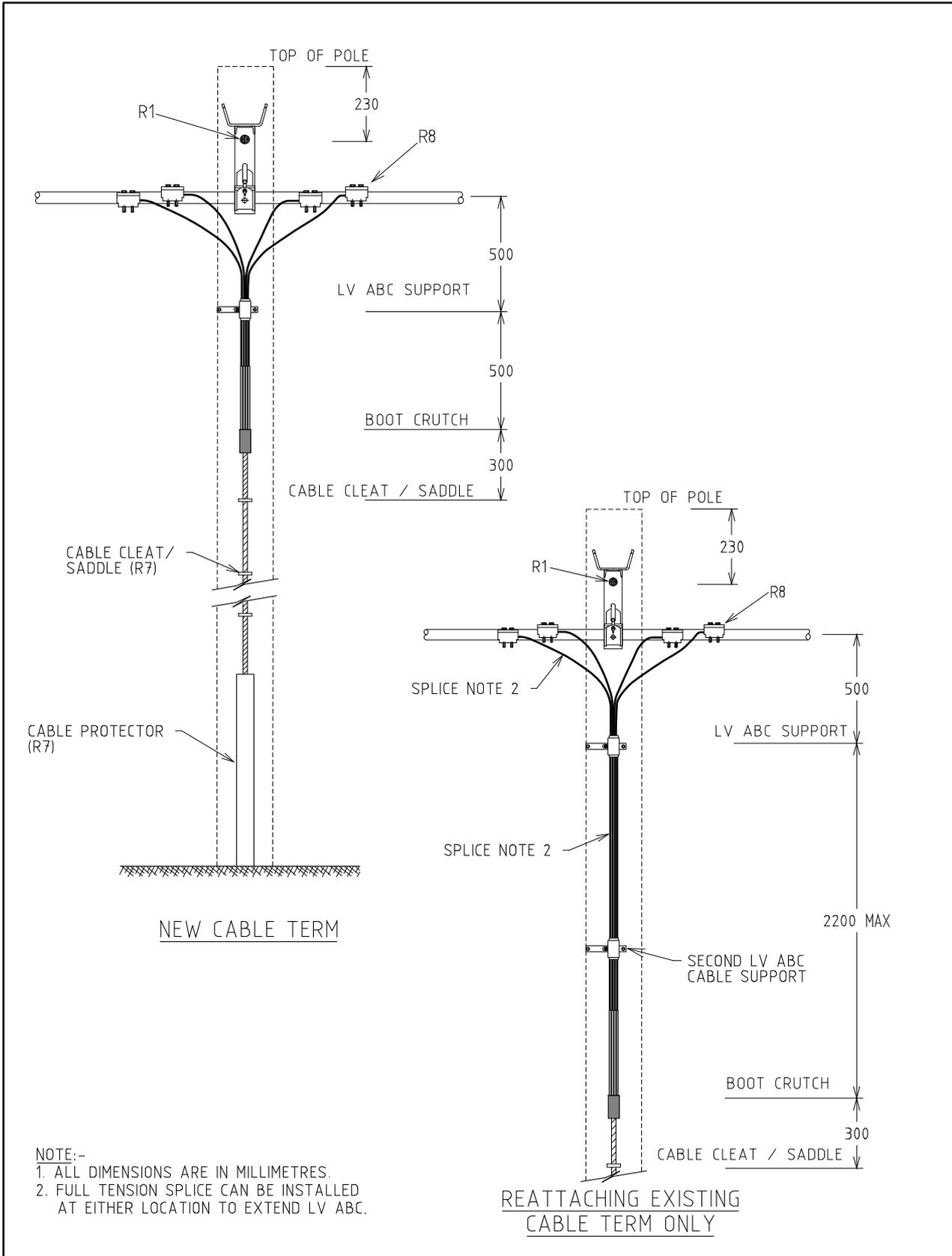




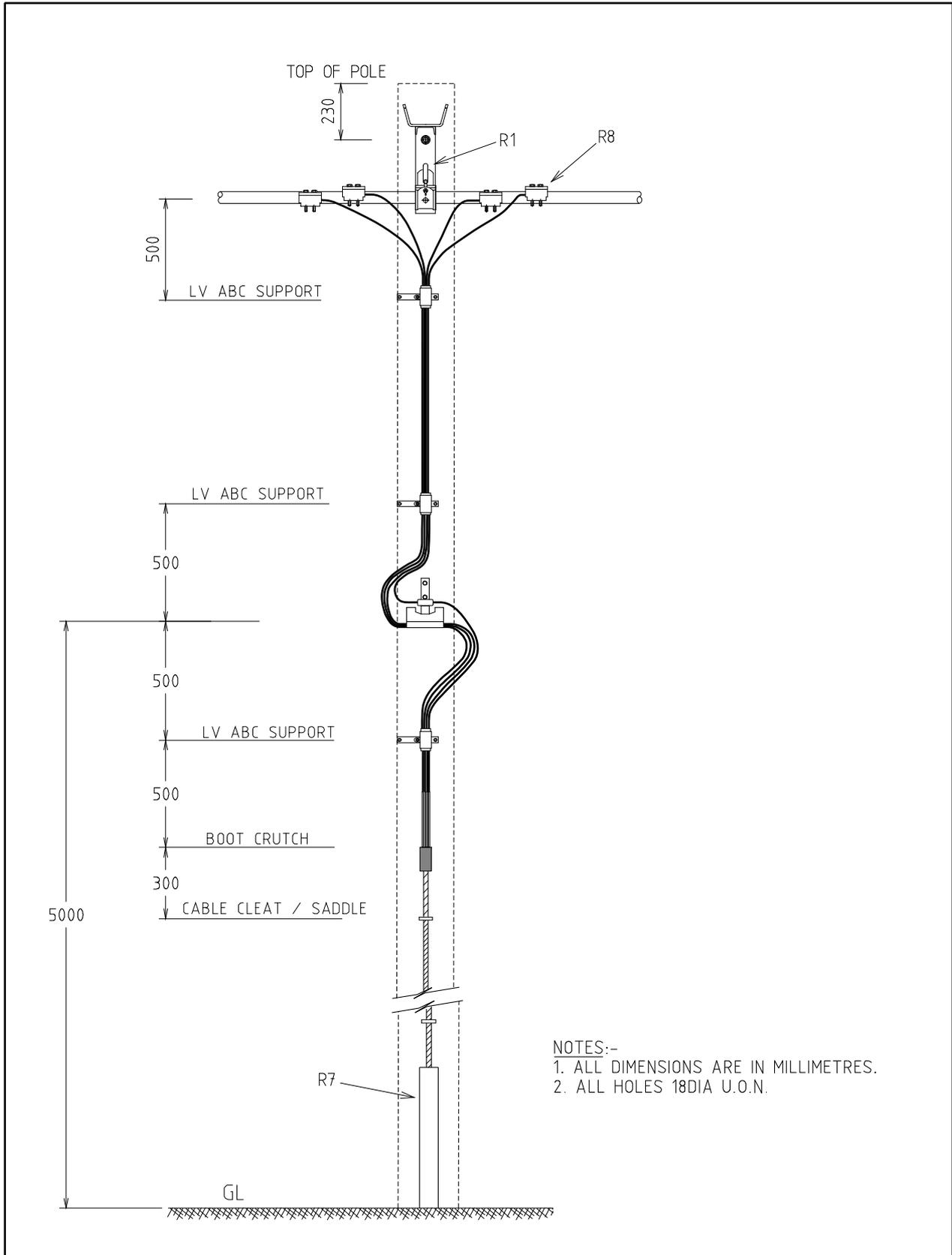
NOTE:-
 1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. FULL TENSION SPLICE CAN BE INSTALLED AT EITHER LOCATION TO EXTEND LV ABC.

				STRUCTURE			DISTRIBUTION CONSTR. STANDARD		westernpower	
				120 TO 240mm ² CABLE TO LV ISOLATORS			DRAWN: JRR DATE: 25-03-2016		ORG. No.	
							ORIGINATED: SCALE: NTS		U15	
							CHECKED: REE		REV. SH.	
							APPROVED: GRANT STACY		REV. B	
REV	DATE	DESCRIPTION	ORGO	CHKD	APRD					
B	24.08.17	ISOLATOR & LV ABC SUPPORT UPDATED, DIM REVISED	CO	JC	GS					
A	22.06.01	ORIGINAL ISSUE								



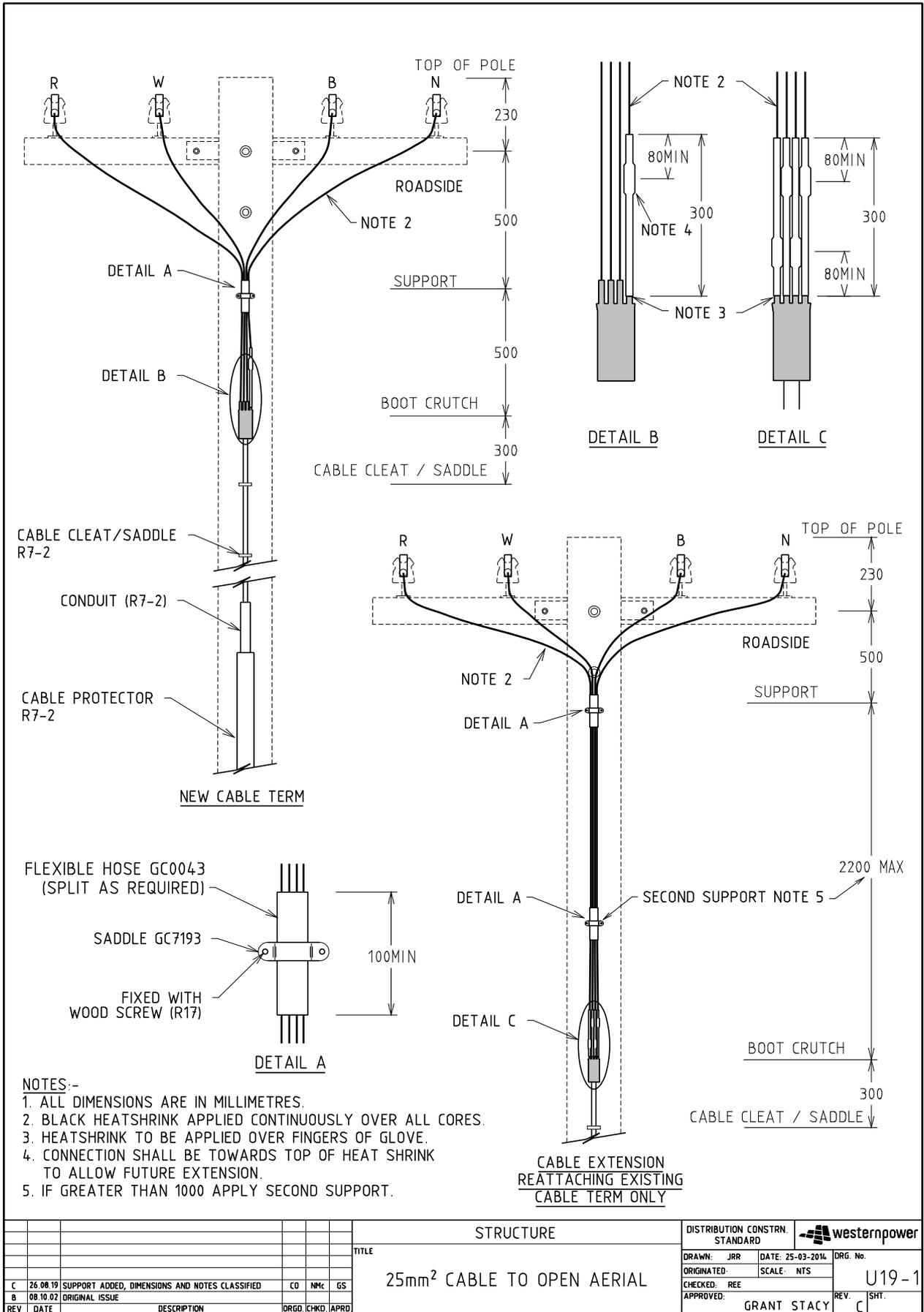


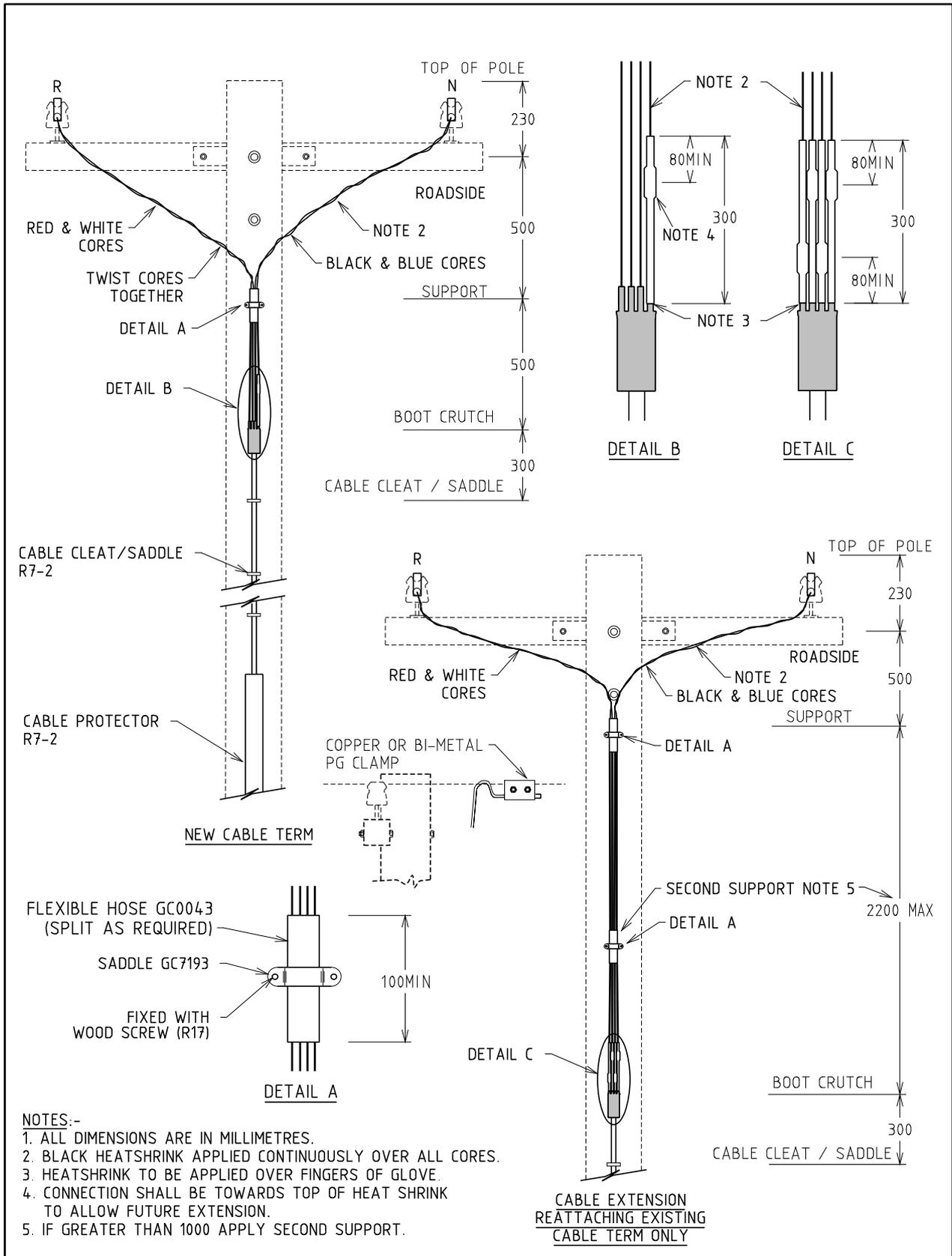
				STRUCTURE			DISTRIBUTION CONSTR. STANDARD			
				TITLE			DRAWN: JRR	DATE: 11-08-2017	DRG. No.	
				120 TO 240mm ² CABLE TO LV ABC, DIRECT CONNECTION			ORIGINATED: CO	SCALE: NTS	U16-2	
							CHECKED: JC			REV. A
							APPROVED: GRANT STACY			SHT.
REV	DATE	DESCRIPTION	CO	JC	GS	DRGD	CHKD	APRD		
A	24.08.17	ORIGINAL ISSUE								



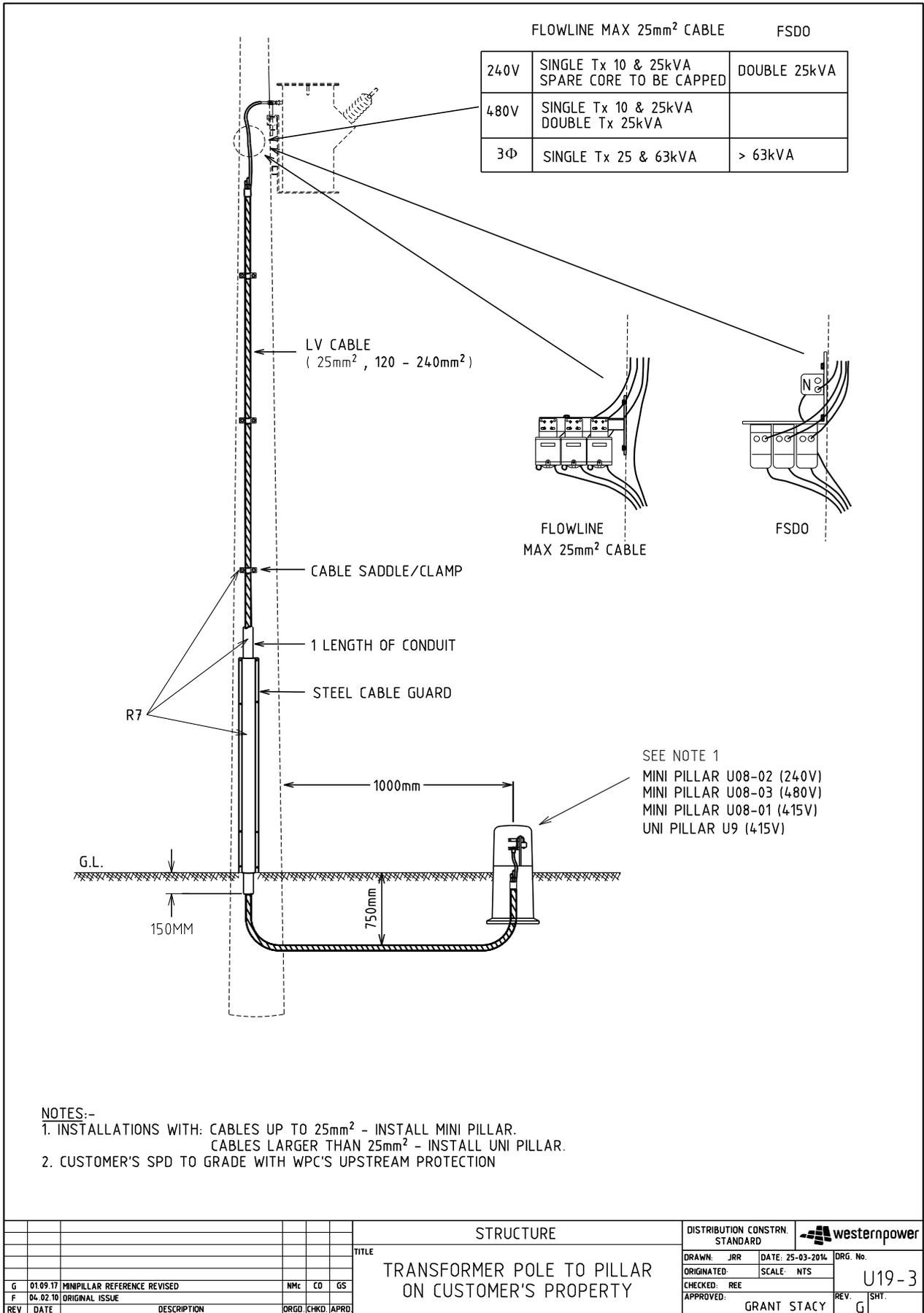
NOTES:-
 1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. ALL HOLES 18DIA U.O.N.

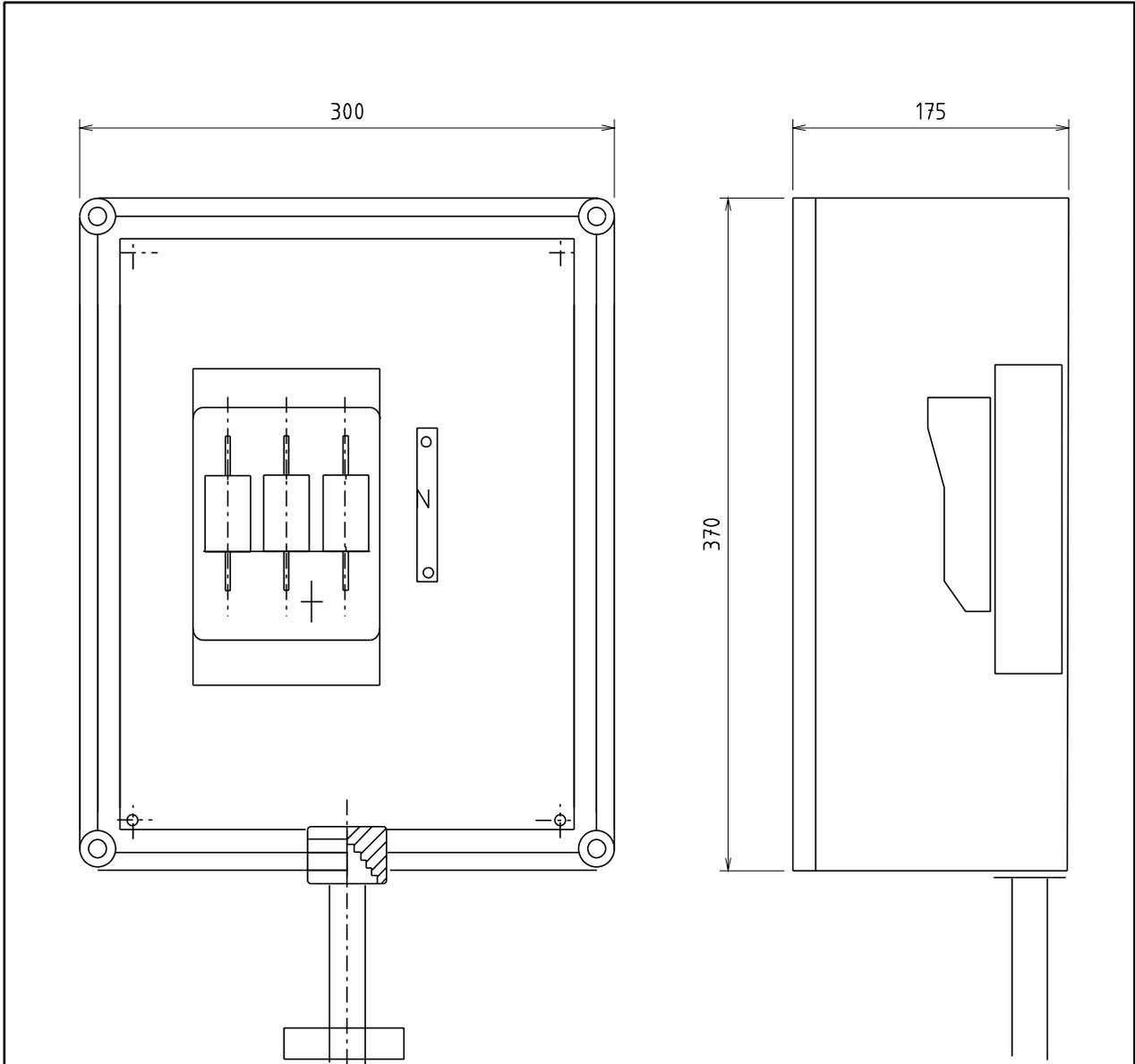
				STRUCTURE			DISTRIBUTION CONSTR. STANDARD				
				TITLE			DRAWN: JRR		DATE: 25-03-2014		DRG. No.
				120 TO 240mm ² CABLE TO LV ABC FUSED CONNECTION			ORIGINATED:		SCALE: NTS		U17
							CHECKED: REE				
							APPROVED:		GRANT STACY		REV. B
REV	DATE	DESCRIPTION	DRG	CHKD	APRD						
B	24.08.17	LV ABC SUPPORTS ADDED, CONNECTION DETAILS CLARIED	CO	JC	GS						
A	13.07.00	ORIGINAL ISSUE									





				STRUCTURE			DISTRIBUTION CONSTR. STANDARD		westernpower		
				TITLE			DRAWN: JRR		DATE: 25-03-2014		
				25mm ² 4 CORE CABLE TO 1 PHASE OPEN AERIAL			ORIGINATED: SCALE: NTS		DRG. No. U19-2		
							CHECKED: REE		APPROVED: GRANT STACY		
							REV. C		SHT.		
REV	DATE	DESCRIPTION	DRGD.	CHKD.	APRD.						
C	26.08.19	MORE DETAILS ADDED		CO	NMc	GS					
B	10.10.04	ORIGINAL ISSUE									

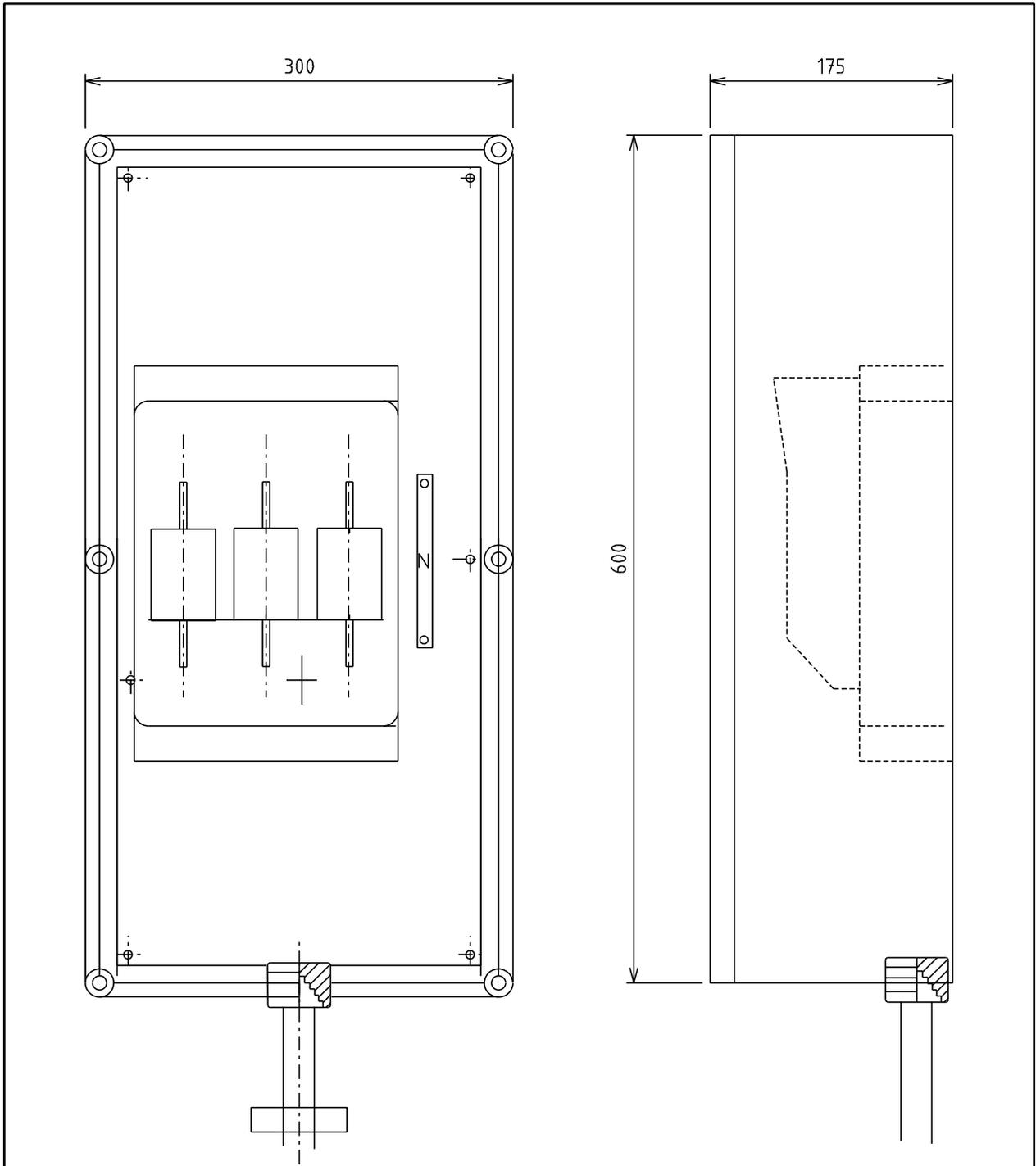




NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. CUTOUT BOX ENCLOSURE MUST HAVE AN APPROVED WESTERN POWER LABEL.

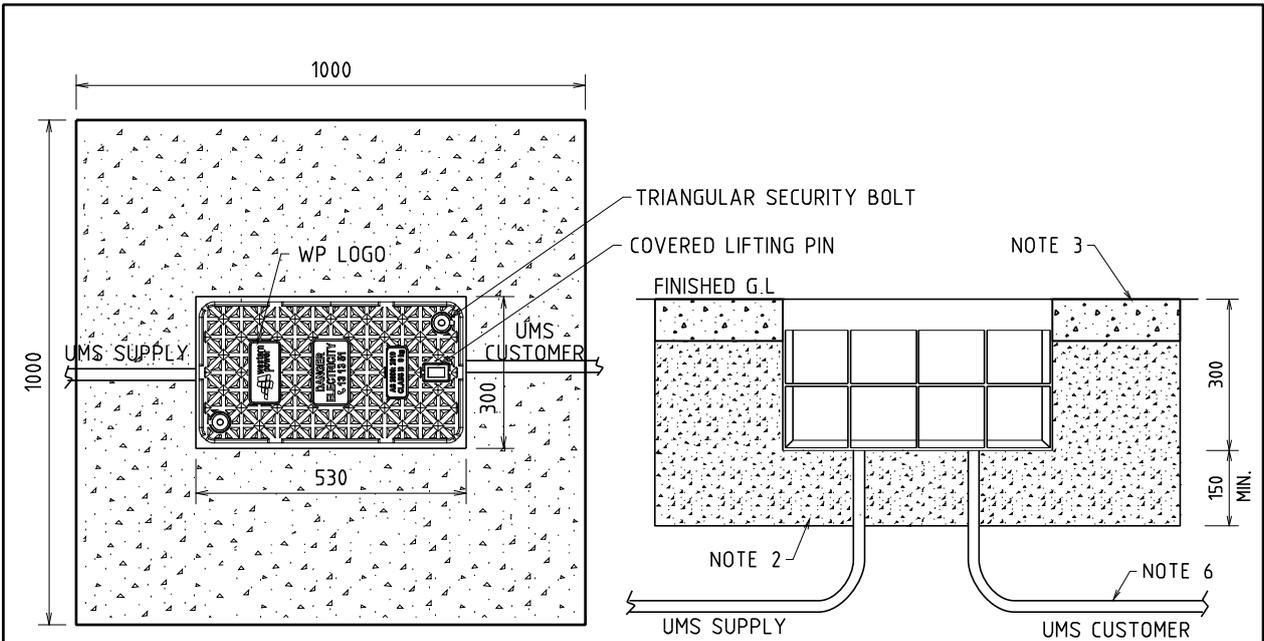
				STRUCTURE			DISTRIBUTION CONSTR. STANDARD			
				TITLE			DRAWN: JRR		DATE: 17-03-2014	
				WALL MOUNTED BOX - 100A			ORIGINATED:		SCALE: NTS	
							CHECKED: REE		DRG. No. U20	
							APPROVED: GRANT STACY		REV. B	
REV	DATE	DESCRIPTION	DRG.	CHKD.	APRO					SHT.
B	06.09.19	NOTE REVISED			GS					
A	03.07.00	ORIGINAL ISSUE			RH					



NOTES:-

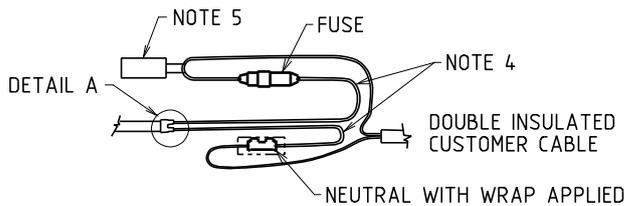
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. CUTOUT BOX ENCLOSURE MUST HAVE AN APPROVED WESTERN POWER LABEL.

				STRUCTURE		DISTRIBUTION CONSTR. STANDARD			
				TITLE		DRAWN: JRR DATE: 17-03-2014		DRG. No.	
				WALL MOUNTED BOX - 200A		ORIGINATED: SCALE: NTS		U21	
						CHECKED: REE		REV. SHT.	
						APPROVED: GRANT STACY		REV. B	
REV	DATE	DESCRIPTION	DRG.	CHKD.	APRD.				
B	06.09.19	NOTES REVISED							
A	03.07.00	ORIGINAL ISSUE							

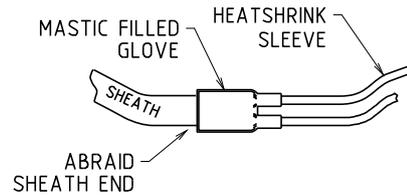


PLAN

SIDE VIEW



WIRING ARRANGEMENT



DETAIL A

TABLE 1

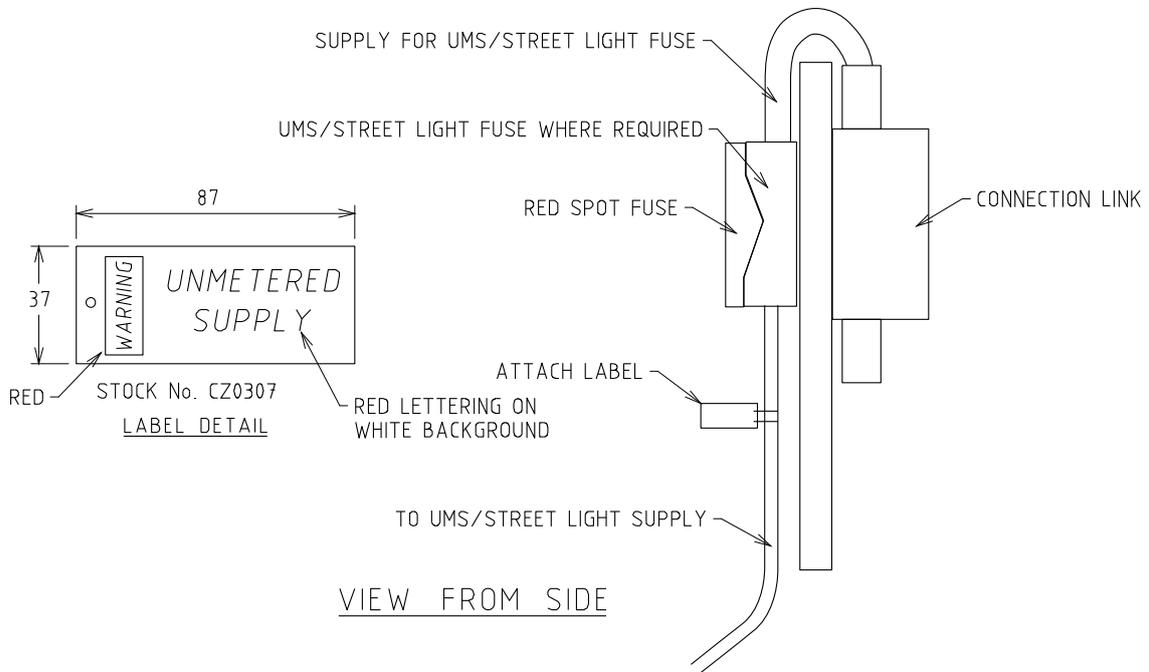
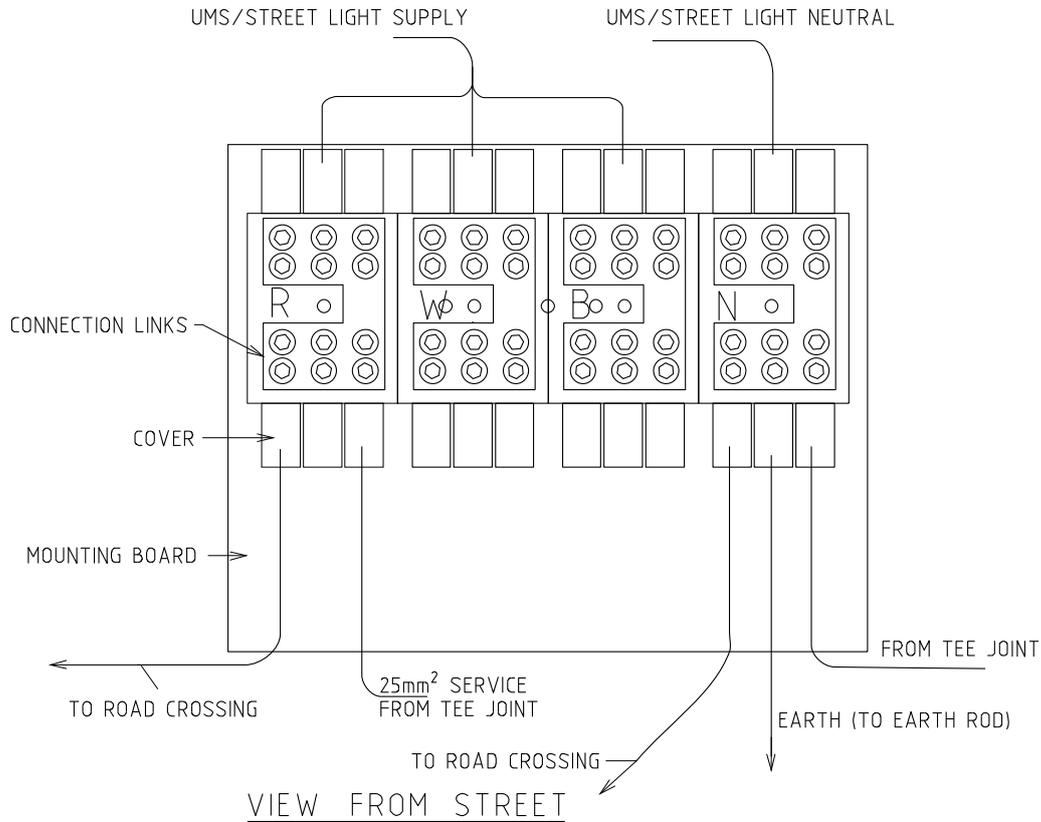
PAVEMENT TYPE	MIN. THICKNESS (mm)
DENSE GRADED ASPHALT	25
CONCRETE *	100
PAVING BLOCK	60

* MINIMUM N25

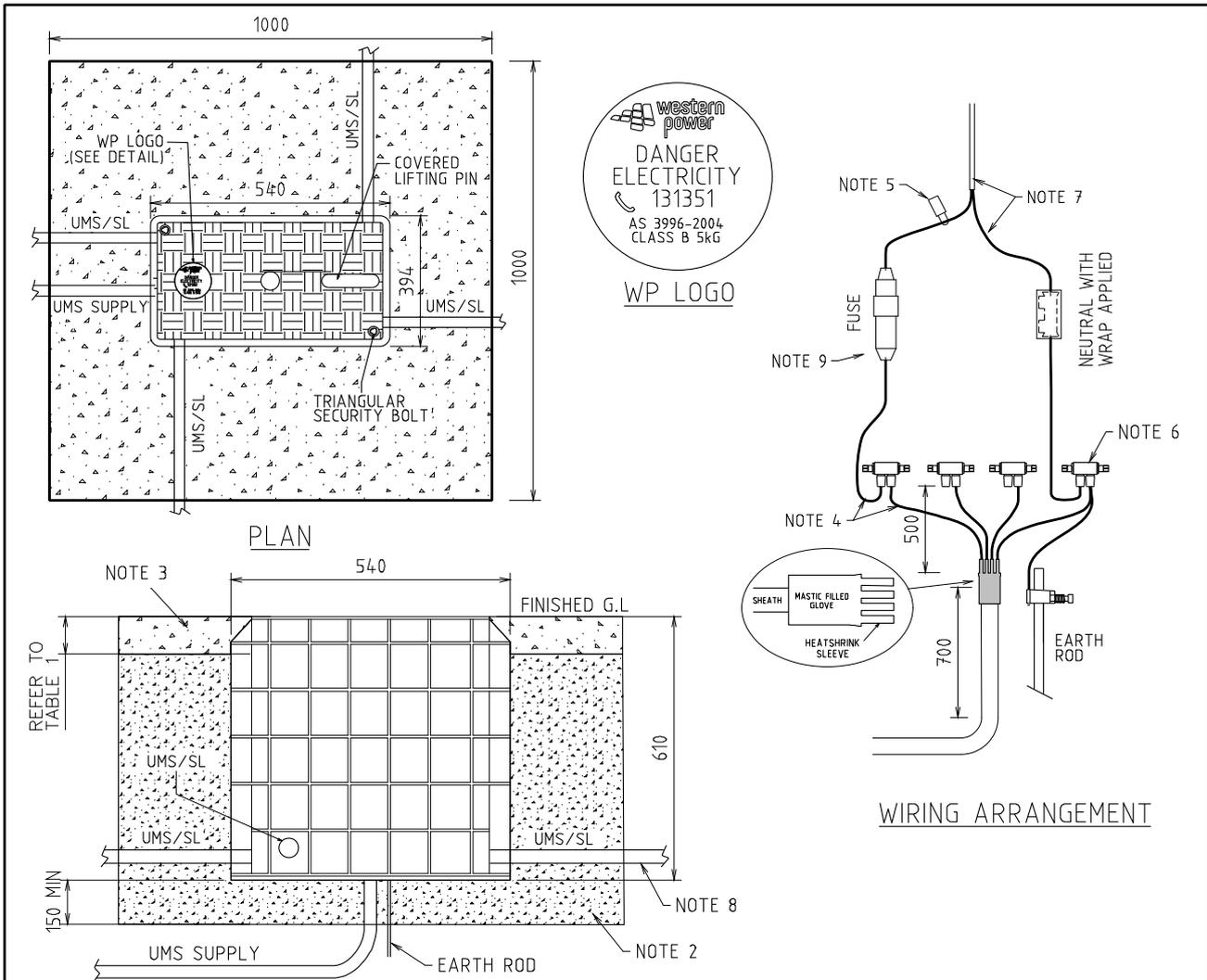
NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. BACKFILL MATERIAL CAN BE NATURAL SOIL. SOIL SURROUNDING PIT COVERING 1m² (MINIMUM) SHALL BE COMPACTED TO ACHIEVE A MINIMUM RELATIVE DENSITY RATIO OF 92% IN ACCORDANCE WITH AS 1289.5.2.1. COMPACTION OF SOIL IS TO BE CARRIED OUT IN LAYERS OF 300mm.
3. FINAL FINISHED GROUND LEVEL SHALL BE OF HARD STAND SURFACE E.G. CONCRETE, BITUMEN, PAVING AND SHALL COVER A MINIMUM OF 1m² SURROUNDING EDGE OF PIT.
4. CORES TO BE 500mm LONG AND HAVE HEATSHRINK APPLIED OVER THE FULL LENGTH.
5. UMS/SL CONNECTION SHALL HAVE UMS TAG (CZ0307).
6. ALL UMS/SL CABLES SHALL BE DOUBLE INSULATED AND PROTECTED BY CONDUIT. CONDUIT SHALL PROTRUDE INTO PIT, MINIMUM 30mm AND MAXIMUM 50mm.

				STRUCTURE			DISTRIBUTION CONSTR. STANDARD		westernpower	
				TITLE			DRAWN: JRR		DATE: 25-03-2016	
				SINGLE PHASE SUPPLIED UMS PIT FOR ONE SINGLE PHASE UMS			ORIGINATED: REE		SCALE: NTS	
							CHECKED: REE		ORG. No.	
							APPROVED: GRANT STACY		REV. F	
									SHT. U23-1	
REV	DATE	DESCRIPTION	ORGD	CHKD	APPR					
F	18.02.21	DRAWING REVISED AND MORE DETAILS ADDED	CO	NN	GS					
E	17.02.17	TITLE CHANGED	REE	JC	GS					
D	22.04.13	ORIGINAL ISSUE								



				STRUCTURE		DISTRIBUTION CONSTR. STANDARD		westernpower	
				TITLE		DRAWN: JRR		DATE: 25-03-2014	
				UNMETERED SUPPLY MINI PILLAR TERMINATION DETAILS		ORIGINATED:		SCALE: NTS	
						CHECKED: REE		DRG. No. U23-2	
						APPROVED: GRANT STACY		REV. A	
								SHT.	
A	12.03.09	ORIGINAL ISSUE		DRG.	CHKD.	APRD.			
REV	DATE	DESCRIPTION							



WIRING ARRANGEMENT

SIDE VIEW

TABLE 1

PAVEMENT TYPE	MIN. THICKNESS (mm)
DENSE GRADED ASPHALT	25
CONCRETE *	100
PAVING BLOCK	60

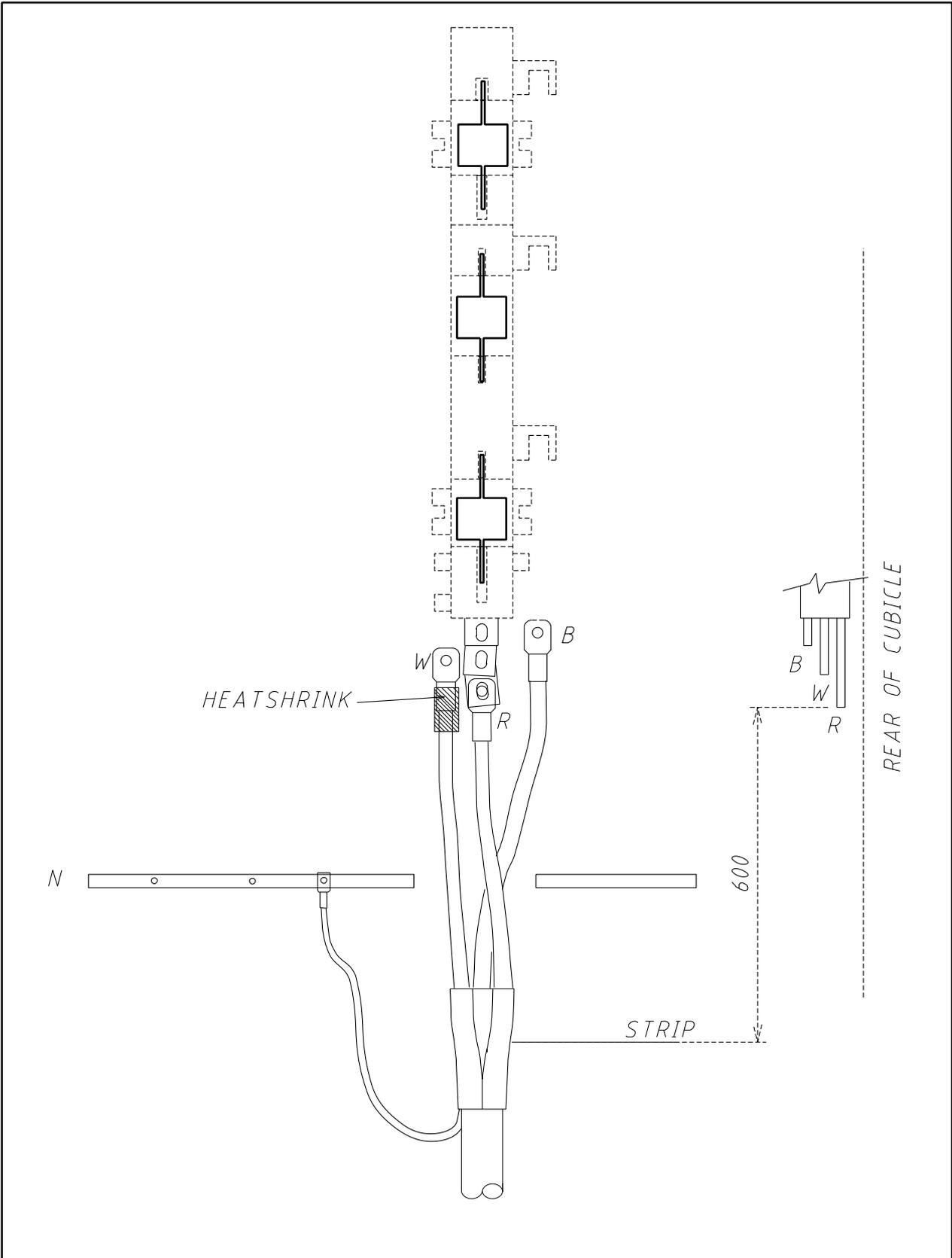
* MINIMUM N25

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. BACKFILL MATERIAL CAN BE NATURAL SOIL. SOIL SURROUNDING PIT COVERING 1m² (MINIMUM) SHALL BE COMPACTED TO ACHIEVE A MINIMUM RELATIVE DENSITY RATIO OF 92% IN ACCORDANCE WITH AS 1289.5.2.1. COMPACTION OF SOIL IS TO BE CARRIED OUT IN LAYERS OF 300mm.
3. FINAL FINISHED GROUND LEVEL SHALL BE OF HARD STAND SURFACE E.G. CONCRETE, BITUMEN, PAVING AND SHALL COVER A MINIMUM OF 1m² SURROUNDING EDGE OF PIT.
4. ALL CORES TO BE 500mm LONG AND HAVE HEATSHRINK APPLIED OVER THE FULL LENGTH.
5. UMS/SL CONNECTION SHALL HAVE UMS TAG (CZ0307).
6. WHERE ADDITIONAL NEUTRAL CONNECTIONS ARE REQUIRED A SECOND NEUTRAL CONNECTOR CAN BE ADDED.
7. ALL UMS/SL CABLES SHALL BE DOUBLE INSULATED AND PROTECTED BY CONDUIT. CONDUIT SHALL PROTRUDE INTO PIT, MINIMUM 30mm AND MAXIMUM 50mm.
8. FOR PERMANENT DISCONNECTION, DO NOT REMOVE CABLE FROM CONNECTOR. REMOVE FUSE AND CLOSE FUSE HOLDER.
9. MAXIMUM 3 UMS SUPPLIES, 1 PER PHASE. ONLY ONE FUSE SHOWN FOR CLARITY.

				STRUCTURE		DISTRIBUTION CONSTR. STANDARD		westernpower	
				TITLE		DRAWN: JRR DATE: 10-09-2019		DRG. No.	
				THREE PHASE SUPPLIED UMS PIT FOR UP TO THREE SINGLE PHASE UMS		ORIGINATED: CO SCALE: NTS		U23-3	
						CHECKED: NN		REV. B	
						APPROVED: GRANT STACY		SHT.	
REV	DATE	DESCRIPTION	ORGD	CHKD	APRD				
B	23.05.22	4 PORT CONNECTOR CHANGED	CO	SH	GS				
A	18.02.21	ORIGINAL ISSUE	CO	NN	GS				





				STRUCTURE		DISTRIBUTION CONSTR. STANDARD			
				TITLE		DRAWN: JRR DATE: 25-03-2014		DRG. No.	
				LV CABLE TO FUSE SWITCH		ORIGINATED: SCALE: NTS		U27-1	
						CHECKED: REE		REV. A	
						APPROVED: GRANT STACY		SHT.	
REV	DATE	DESCRIPTION	ORGO.	CHKD.	APPRD.				
A	10.07.00	ORIGINAL ISSUE							

CABLE TO LV FUSE SWITCH

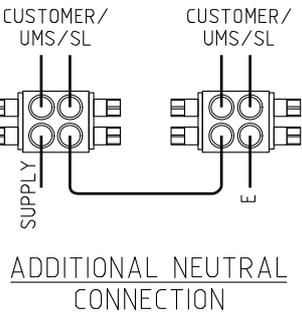
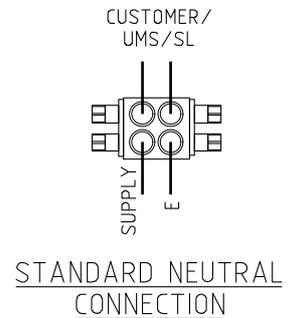
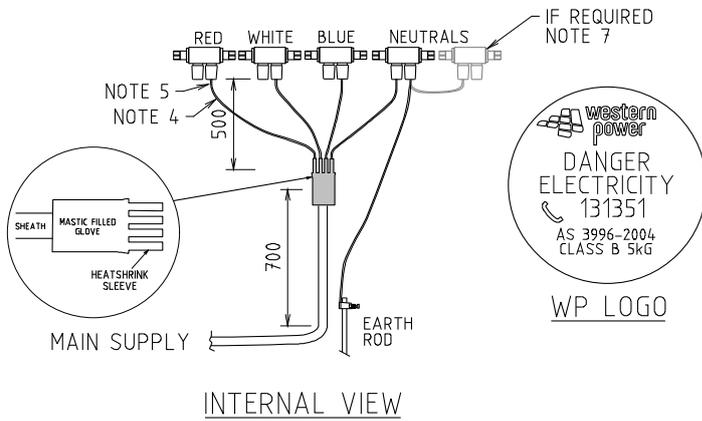
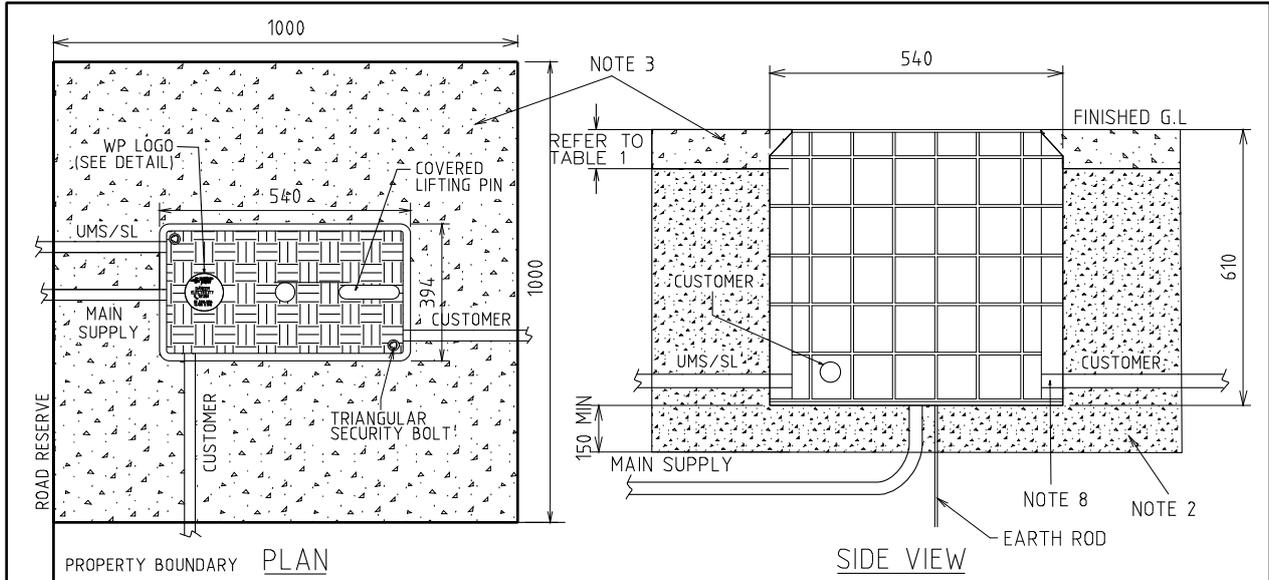
SAFETY INSTRUCTION.

THE CABLE TO BE WORKED ON, MUST BE DEAD AND THE REMOTE END MUST BE TERMINATED OR MADE OFF BEFORE WORK COMMENCES AT THE FUSE SWITCH.

TERMINATION PROCEDURE

1. POSITION THE CABLE TO SUIT THE CORRECT CIRCUIT ON THE LV DISTRIBUTION BOARD.
2. MARK SHEATH, CUT 600mm BELOW BOTTOM OF FUSE UNIT.
3. REMOVE SHEATH ABOVE THIS MARK.
4. BRING OUT NEUTRAL WIRES AND FORM INTO ONE CORE AT THE BACK OF THE CABLE.
5. ABRASE CABLE SHEATH FOR APPROXIMATELY 100mm.
6. FIT HEATSHRINK GLOVE, PULL WELL DOWN INTO CRUTCH AREA AND HEATSHRINK STARTING FROM CENTRE.
7. SHAPE NEUTRAL CORE TO SUIT CONNECTION TO NEUTRAL BAR, CUT AND CRIMP APPROPRIATE SIZE LUG.
8. FIT BLACK HEATSHRINK OVER NEUTRAL FOR REQUIRED LENGTH AND HEATSHRINK SO ONLY LUG PALM EXPOSED.
9. BOLT NEUTRAL TO NEUTRAL BAR.
10. SET PHASE CORES TO FINAL TERMINATING POSITIONS, STARTING WITH RED PHASE AT THE BACK OF THE UNIT TO BLUE AT THE FRONT.
11. FIT AND CRIMP APPROPRIATE SIZE SECTOR LUGS TO PHASE CORES.
12. FIT 100mm LENGTH OF HEATSHRINK OVER EACH LUG TO SEAL LUG AND CORE.
13. APPLY JOINTING COMPOUND TO PALMS OF LUGS AND CONNECTIONS.
14. ENSURE PHASING IS CORRECT, THEN BOLT LUGS TO CONNECTORS USING BOLTS PROVIDED.
15. LABEL CIRCUIT.

				STRUCTURE		DISTRIBUTION CONSTR. STANDARD			
				TITLE		DRAWN: JRR		DATE: 25-03-2014	
				LV CABLE TO FUSE SWITCH INSTALLATION INSTRUCTIONS		ORIGINATED:		SCALE: NTS	
						CHECKED: REE		DRG. No. U27-2	
						APPROVED:		REV. SHT.	
						GRANT STACY		A	
A	09.03.02	ORIGINAL ISSUE		ORGO.	CHKD.	APROD.			
REV	DATE	DESCRIPTION							



APPLICATION

THE USE OF A BELOW GROUND SERVICE PIT (BGSP) SHALL ONLY BE CONSIDERED WHERE NO OTHER CONNECTION ARRANGEMENTS ARE POSSIBLE (WASIR 12.5.2) AND THE BGSP IS EXPECTED TO BE IN A THOROUGHFARE (I.E. DRIVEWAY OR PATH) WHERE A PILLAR WOULD PRESENT A TRIP HAZARD OR SAFETY CONCERN.

NOTES:-

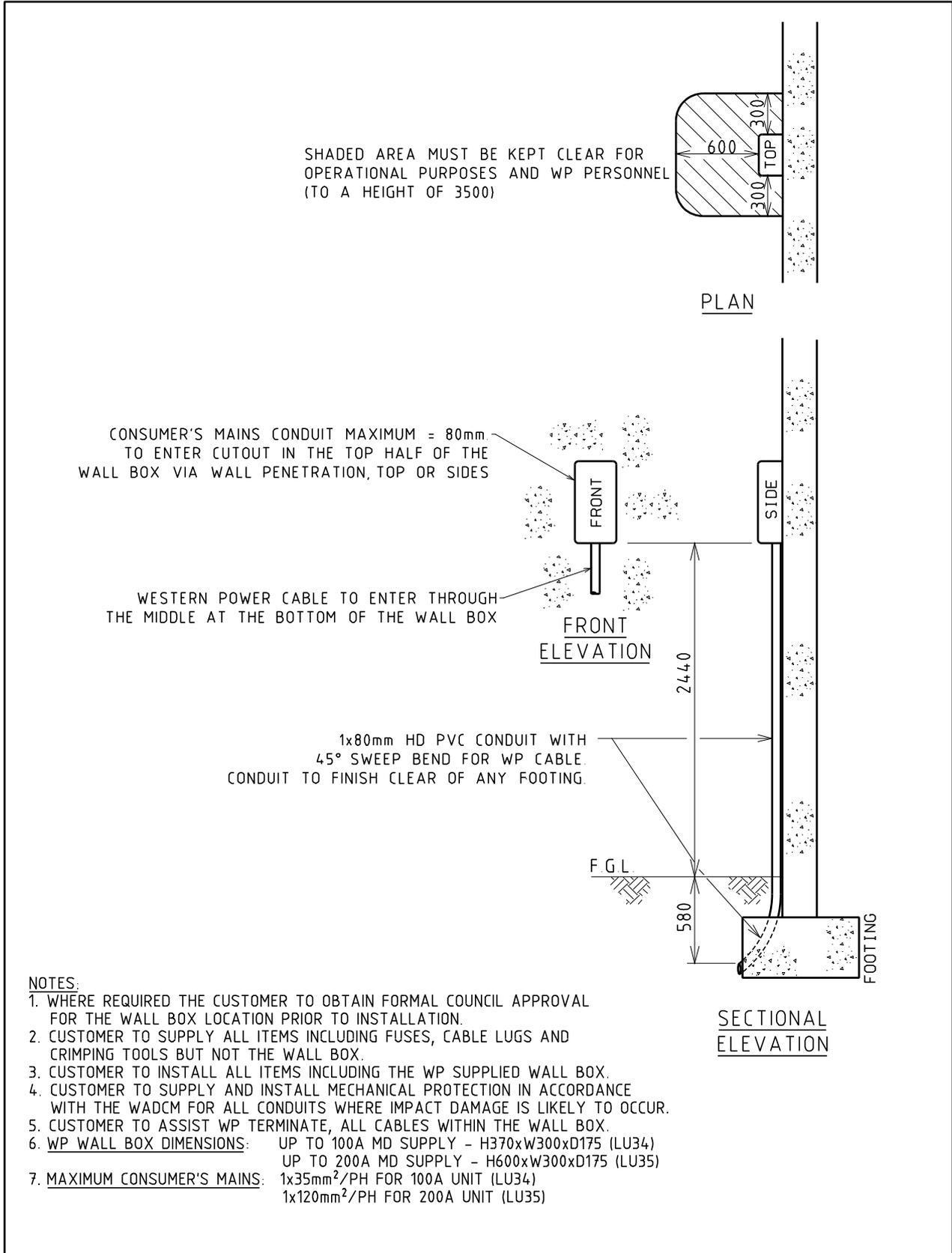
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. BACKFILL MATERIAL CAN BE NATURAL SOIL. SOIL SURROUNDING PIT COVERING 1m² (MINIMUM) SHALL BE COMPACTED TO ACHIEVE A MINIMUM RELATIVE DENSITY RATIO OF 92% IN ACCORDANCE WITH AS 1289.5.2.1. COMPACTION OF SOIL IS TO BE CARRIED OUT IN LAYERS OF 300mm.
3. FINAL FINISHED GROUND LEVEL SHALL BE OF HARD STAND SURFACE E.G. CONCRETE, BITUMEN, PAVING AND SHALL COVER A MINIMUM OF 1m² SURROUNDING EDGE OF PIT.
4. CORES TO BE 500mm LONG AND HAVE HEATSHRINK APPLIED OVER THE FULL LENGTH.
5. FOR PERMANENT DISCONNECTION, DO NOT REMOVE CABLE FROM CONNECTOR. CUT CABLE TO LEAVE APPROX. 50MM PROTRUDING OUT OF CONNECTOR THEN CAP WITH HEATSHRINK. USE CAUTION WHEN APPLYING HEATSHRINK TO AVOID DAMAGE TO CONNECTOR.
6. ALL SIDE ENTRY CABLES SHALL BE DOUBLE INSULATED AND PROTECTED BY CONDUIT. CONDUIT SHALL PROTRUDE INTO PIT, MINIMUM 30mm AND MAXIMUM 50mm.
7. WHERE ADDITIONAL NEUTRAL CONNECTIONS ARE REQUIRED A SECOND NEUTRAL CONNECTOR CAN BE ADDED

TABLE 1

PAVEMENT TYPE	MIN. THICKNESS (mm)
DENSE GRADED ASPHALT	25
CONCRETE *	100
PAVING BLOCK	60

* MINIMUM N25

				STRUCTURE			DISTRIBUTION CONSTR. STANDARD			
F	23.05.22	GEL PORT CHANGED	CO	SH	GS	TITLE BELOW GROUND SERVICE PIT (BGSP)	DRAWN: JRR	DATE: 25-03-2014	DRG. No. U30	
E	18.02.21	NOTE 3 MADE CLEAR	CO	NN	GS		ORIGINATED	SCALE: NTS		
D	23.07.19	REDRAWN	NN	CO	GS		CHECKED: CO			
C	11.06.19	MOVED TO MAINTENANCE MANUAL	JC	REE	GS		APPROVED:			
B	11.11.07	ORIGINAL ISSUE					GRANT STACY	REV. F		
REV	DATE	DESCRIPTION	ORIG	CHKD	APRD					



				STRUCTURE			DISTRIBUTION CONSTR. STANDARD		westernpower	
				TITLE			DRAWN: JRR		DATE: 23-12-2013	
				WALL BOX SURFACE MOUNTED ON CUSTOMER'S WALL			ORIGINATED:		SCALE: NTS	
							CHECKED: RH		DRG. No. U31	
							APPROVED: MARK SMITHERS		REV. B	
REV	DATE	DESCRIPTION	DRG	CHKD	APRD					
B	18.02.21	CABLE ENTRY METHOD MODIFIED	CO	NN	GS					
A	12.02.14	ORIGINAL ISSUE			RH					

