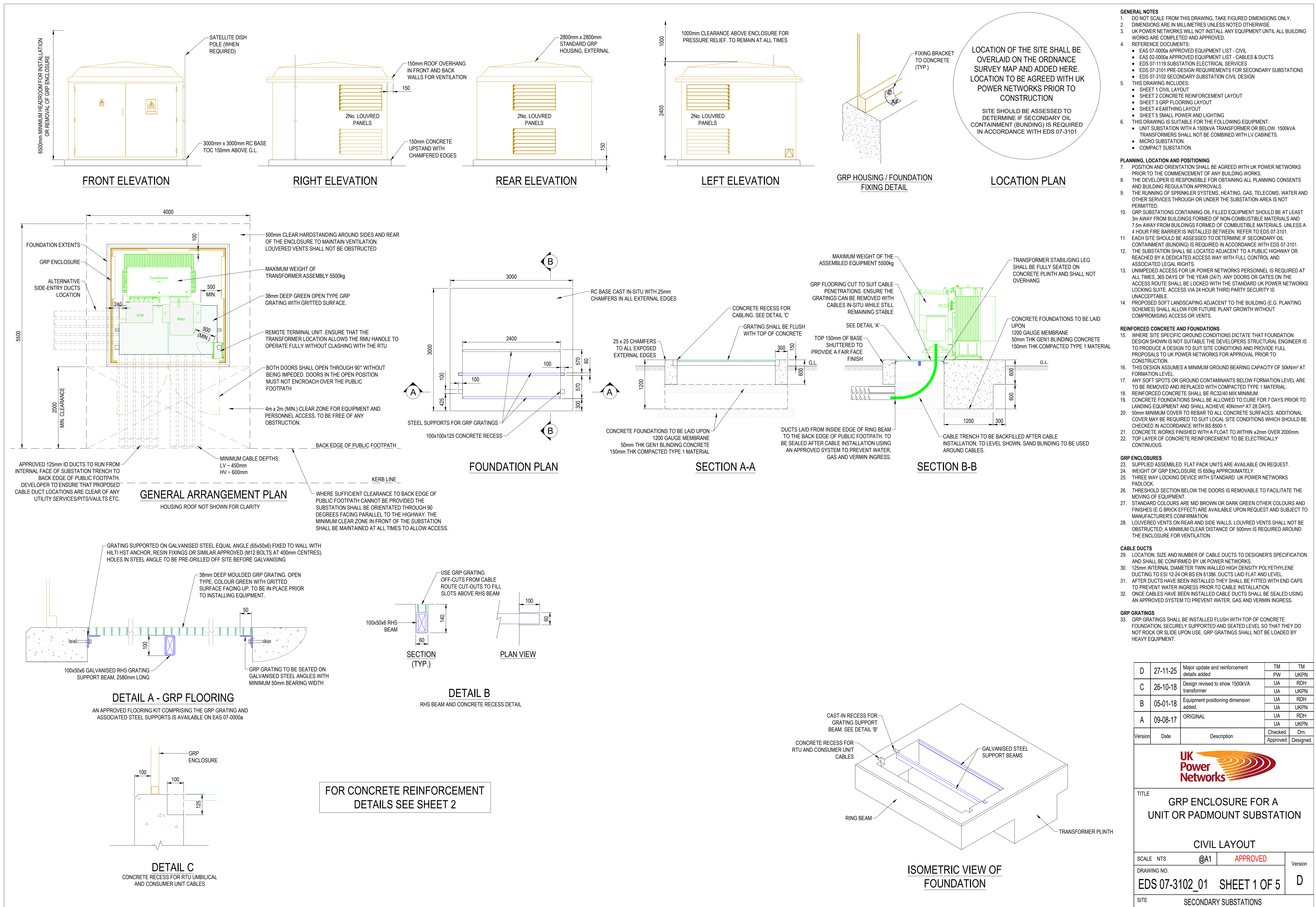
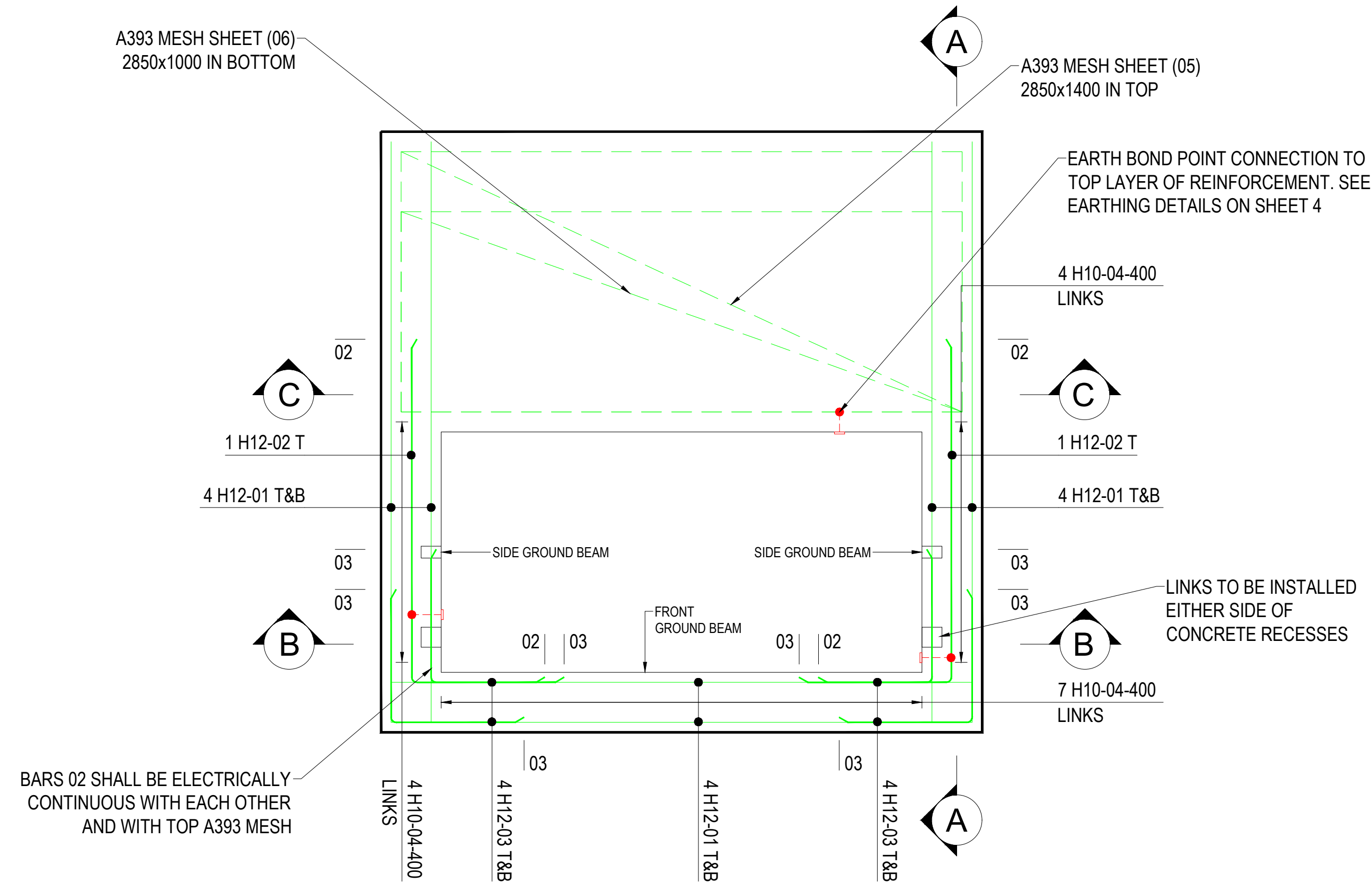
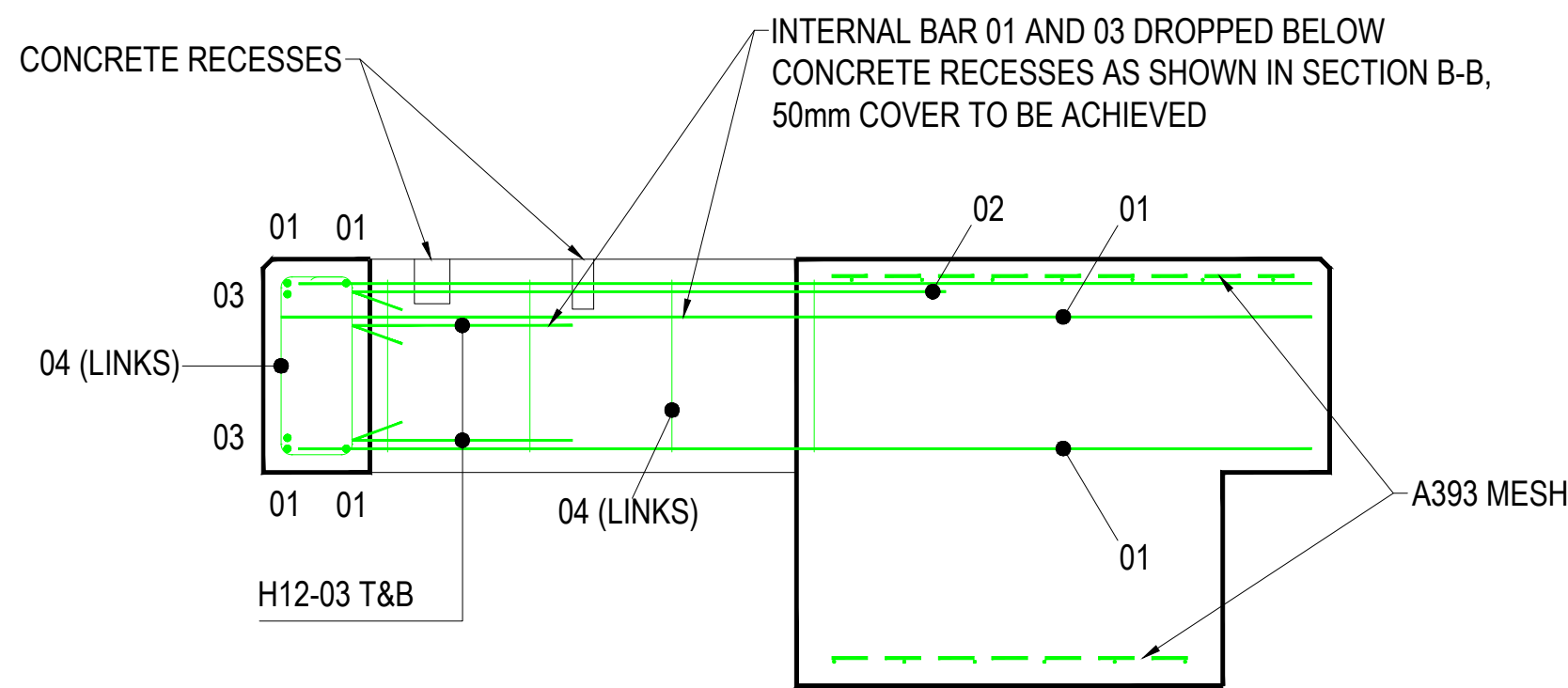


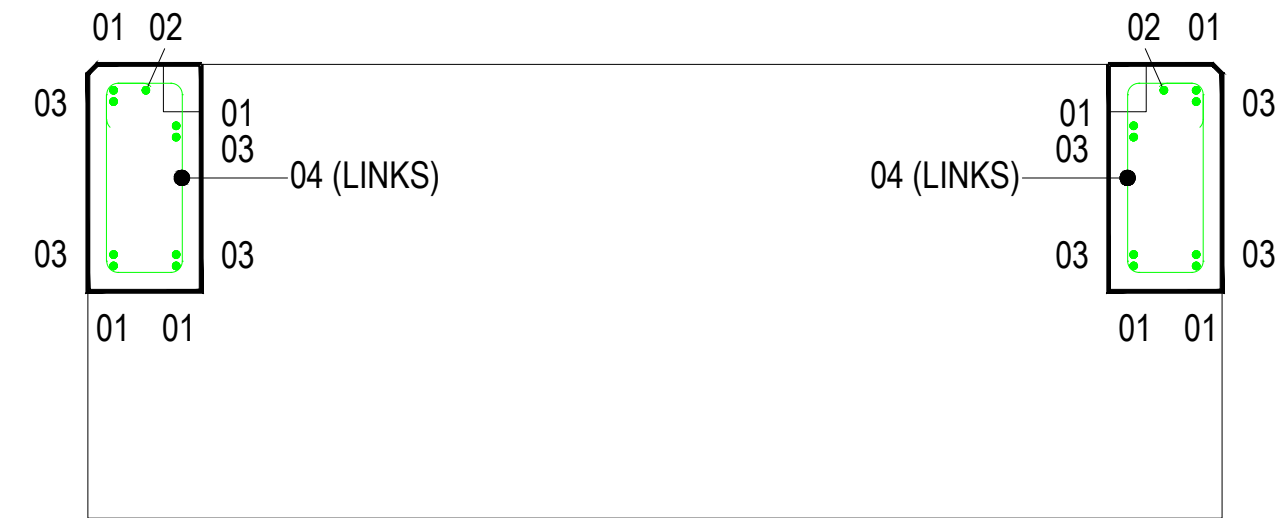




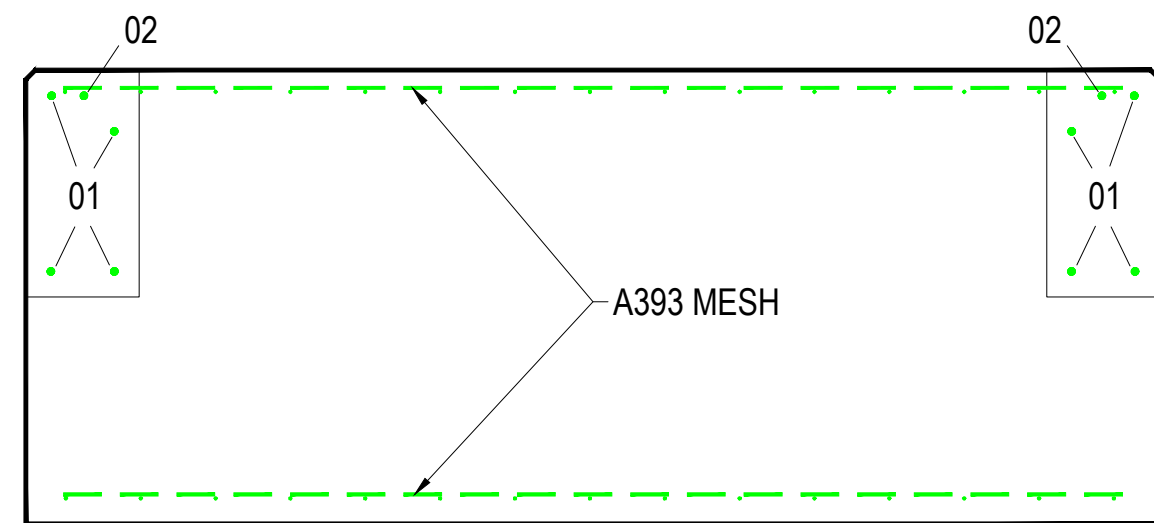
PLAN VIEW



SECTION A-A



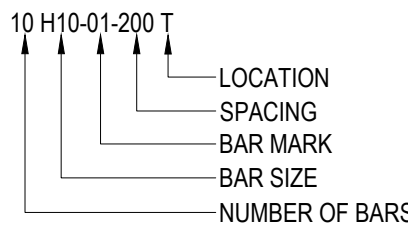
SECTION B-B



SECTION C-C

NOTES:

- DO NOT SCALE FROM THIS DRAWING, TAKE FIGURED DIMENSIONS ONLY.
- DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- WHERE SITE SPECIFIC GROUND CONDITIONS DICTATE THAT FOUNDATION DESIGN SHOWN IS NOT SUITABLE THE DEVELOPERS STRUCTURAL ENGINEER IS TO PRODUCE A DESIGN TO SUIT SITE CONDITIONS AND PROVIDE FULL PROPOSALS TO UK POWER NETWORKS FOR APPROVAL PRIOR TO CONSTRUCTION.
- PREFERENTIAL REINFORCEMENT LAYOUTS AND DETAILING ARE TO BE VERIFIED BY THE DEVELOPERS STRUCTURAL ENGINEER.
- THE REINFORCEMENT DESIGN IS BASED ON THE ASSUMPTION THAT EITHER THE FRONT BEAM OR BOTH SIDE BEAMS ARE FULLY GROUND BEARING DURING CONSTRUCTION. BACKFILL AROUND GROUND BEAMS TO BE COMPLETED AFTER CABLE INSTALLATION TO ENSURE FULL GROUND BEARING.
- REINFORCED CONCRETE WITH RC32/40 MIX MINIMUM (40N/mm² AFTER 28 DAYS).
- CONCRETE WORKS FINISHED WITH A FLOAT TO WITHIN ±2mm OVER 2000mm.
- 50mm MINIMUM COVER TO REBAR TO ALL CONCRETE SURFACES. ADDITIONAL COVER MAY BE REQUIRED TO SUIT LOCAL SITE CONDITIONS WHICH SHOULD BE CHECKED IN ACCORDANCE WITH BS 8500-1.
- TOP LAYERS OF CONCRETE REINFORCEMENT TO BE ELECTRICALLY CONTINUOUS.
- MINIMUM LAP AND ANCHORAGE LENGTH TO BE 620mm FOR H12 BARS ONLY.
- REINFORCEMENT CALLED UP AS FOLLOWS:



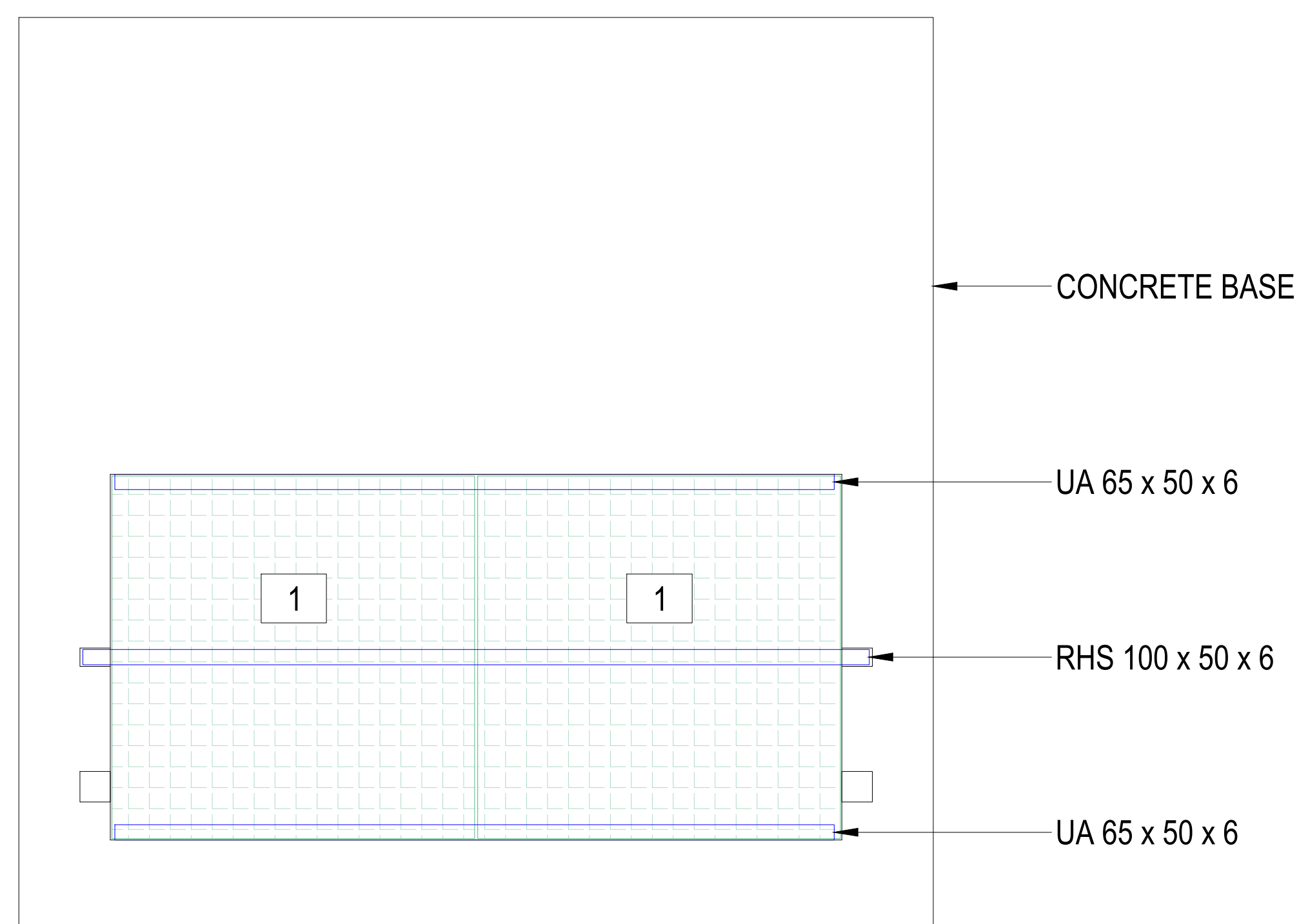
T - TOP
B - BOTTOM

TOP LAYERS OF CONCRETE REINFORCEMENT TO BE BONDED TOGETHER FOR ELECTRICAL / EARTH CONTINUITY. REFER TO SHEET 4 FOR EARTHING DETAILS AND REBAR BONDING OPTIONS

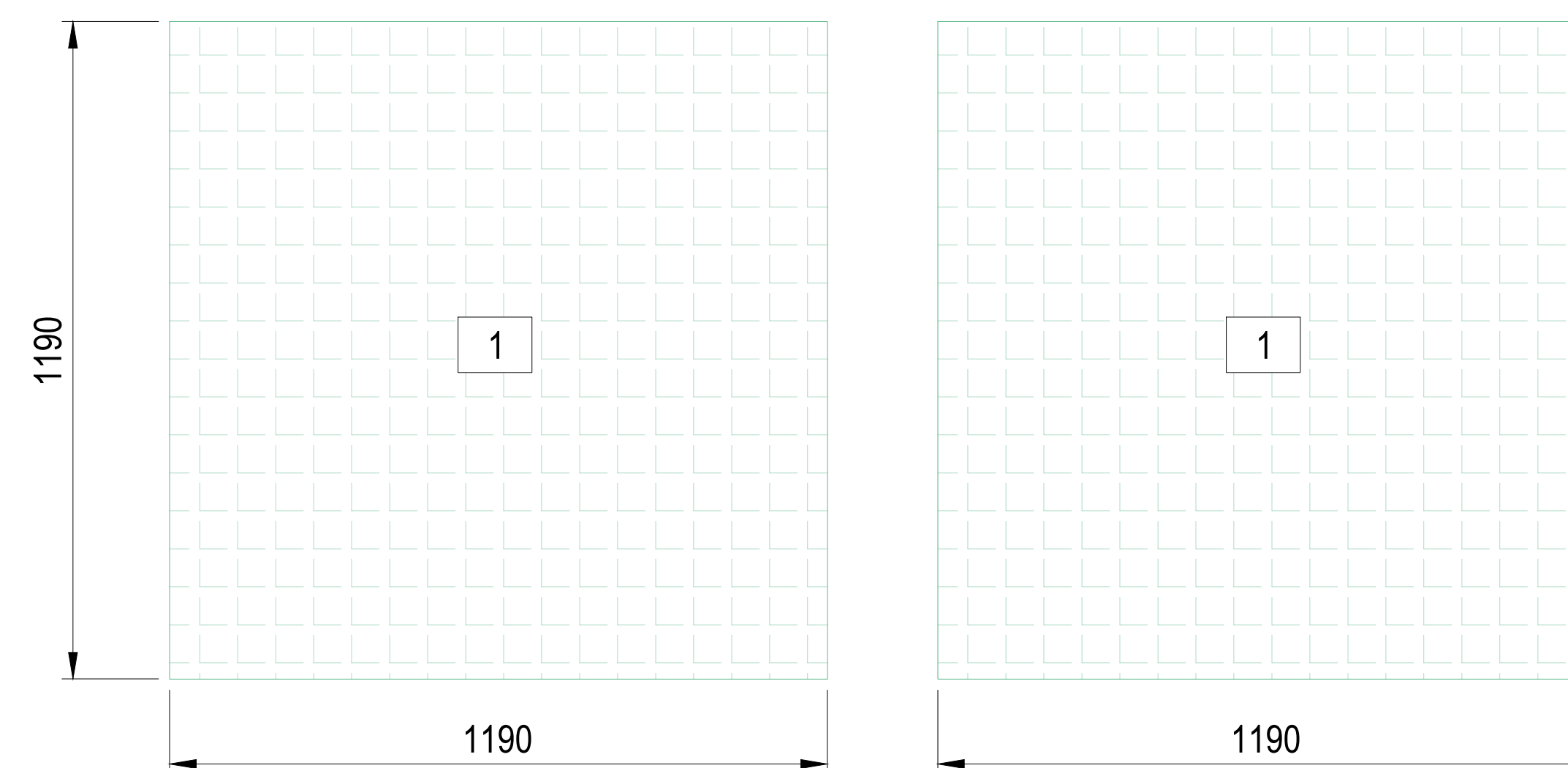
STEEL REINFORCEMENT SCHEDULE								
BAR MARK	TYPE & SIZE	TOTAL NUMBER	BAR LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	D (mm)
01	H12	12	2850	00	2850			
02	H12	2	2375	11	1715	665		
03	H12	8	1325	11	665	665		
04	H10	15	1560	51	200	500	130	130
					LENGTH (mm)		WIDTH (mm)	
05	A393 MESH - PLINTH - TOP				2850		1400	
06	A393 MESH - PLINTH - BOTTOM				2850		1000	

A	27-11-25	ORIGINAL	TM	TM
			PW	UKPN
Version	Date	Description	Checked	Dm.
			Approved	Designed
TITLE GRP ENCLOSURE FOR A UNIT OR PADMOUNT SUBSTATION				
CONCRETE REINFORCEMENT LAYOUT				
SCALE NTS		@A1	APPROVED	Version
DRAWING NO.		EDS 07-3102_01 SHEET 2 OF 5		A
SITE		SECONDARY SUBSTATIONS		

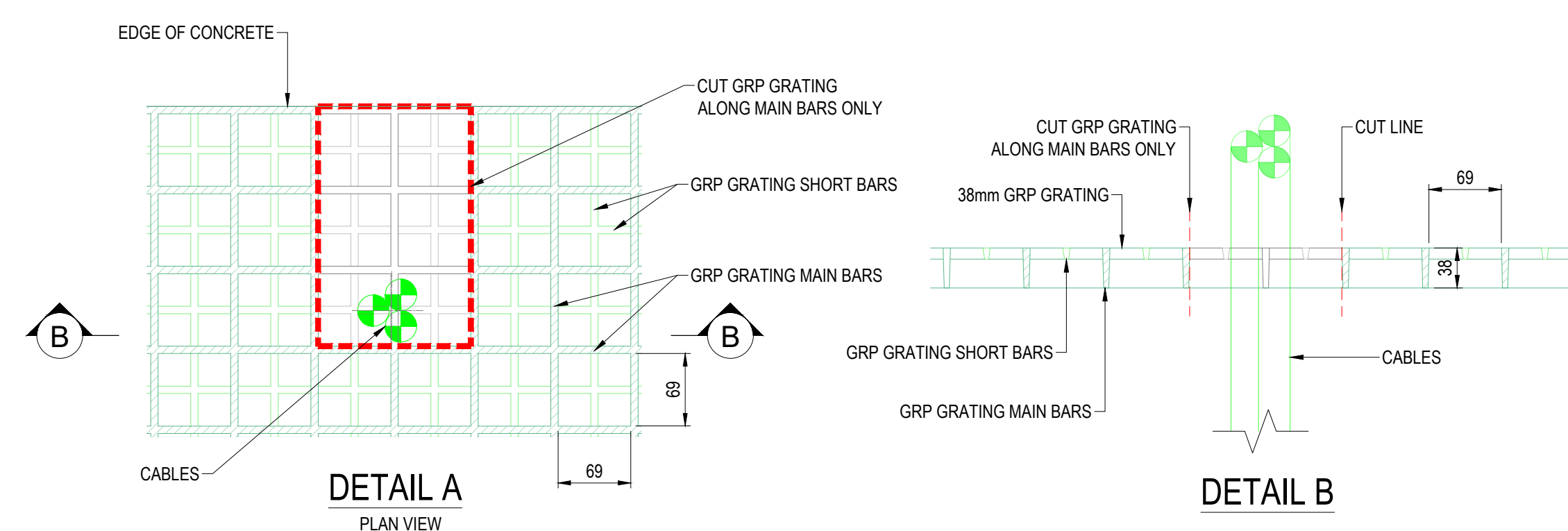
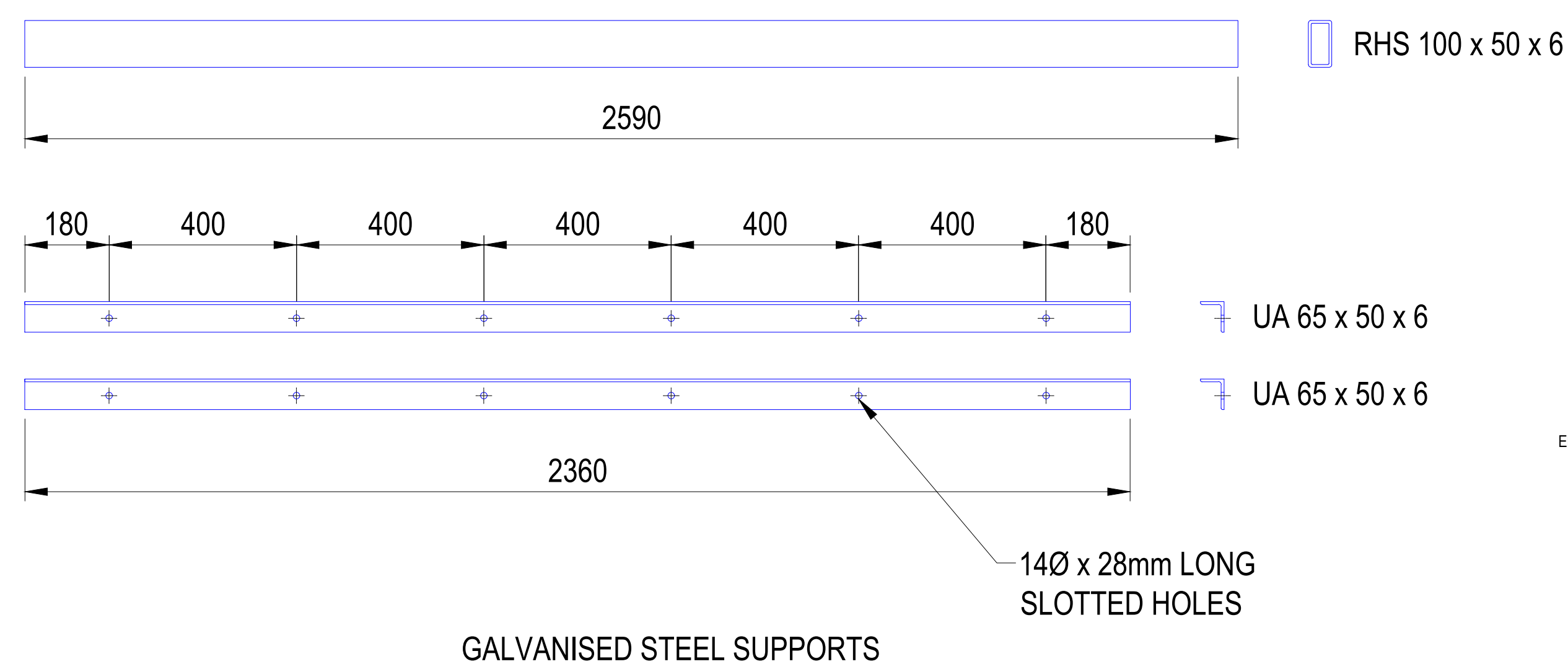
- GENERAL NOTES**
1. DO NOT SCALE FROM THIS DRAWING. TAKE FIGURED DIMENSIONS ONLY.
 2. DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
 3. UK POWER NETWORKS WILL NOT INSTALL ANY EQUIPMENT UNTIL ALL BUILDING WORKS ARE COMPLETED AND APPROVED.
 4. REFERENCE DOCUMENTS:
 - EAS 07-000a APPROVED EQUIPMENT LIST - CIVIL
 - EAS 07-012 GRP GRATING FOR USE IN SUBSTATIONS.
 5. GRP GRATING SHALL BE CUT IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS USING APPROVED TOOLS AND PPE.



GENERAL ARRANGEMENT PLAN

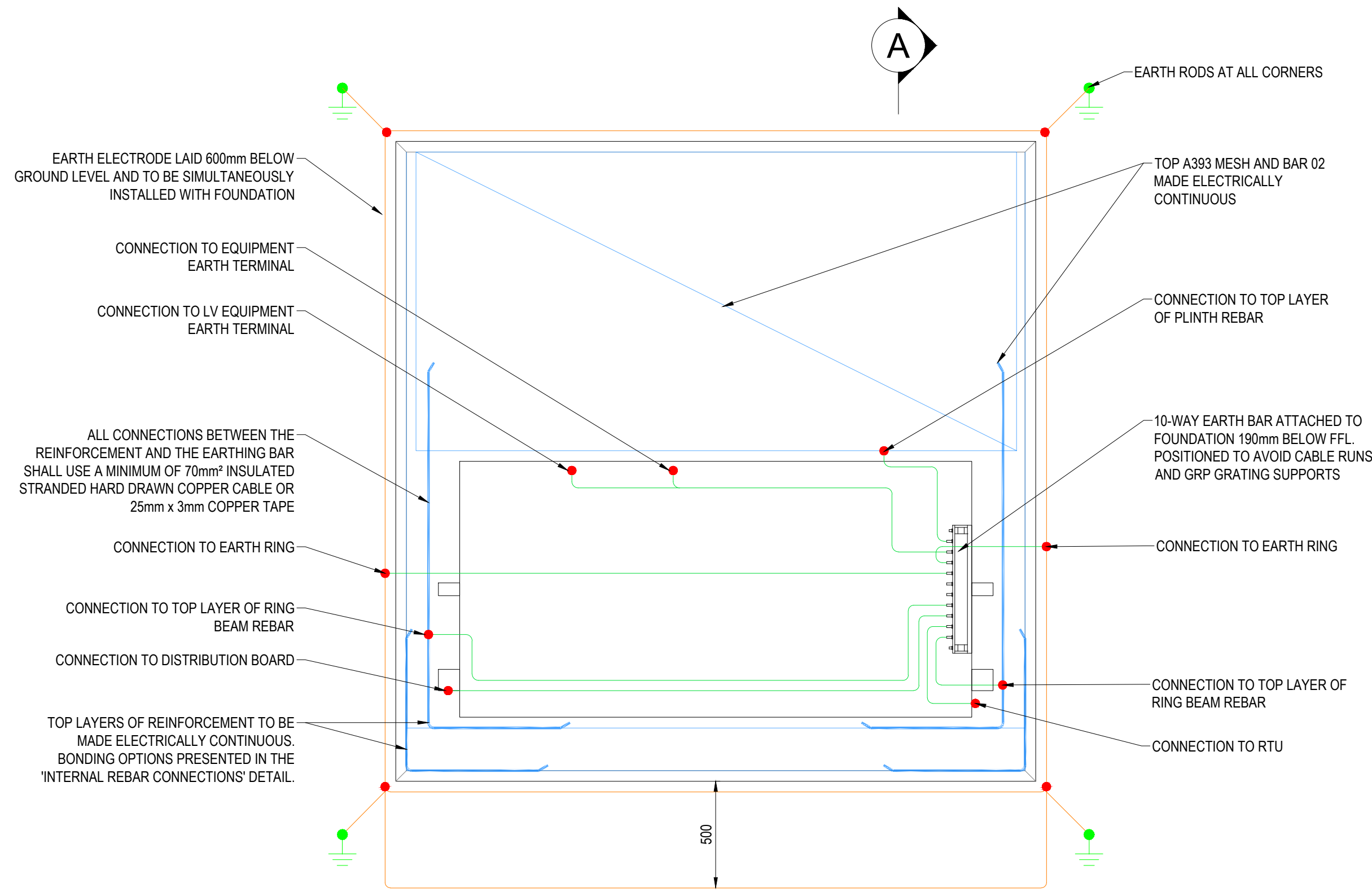


GRP PANELS

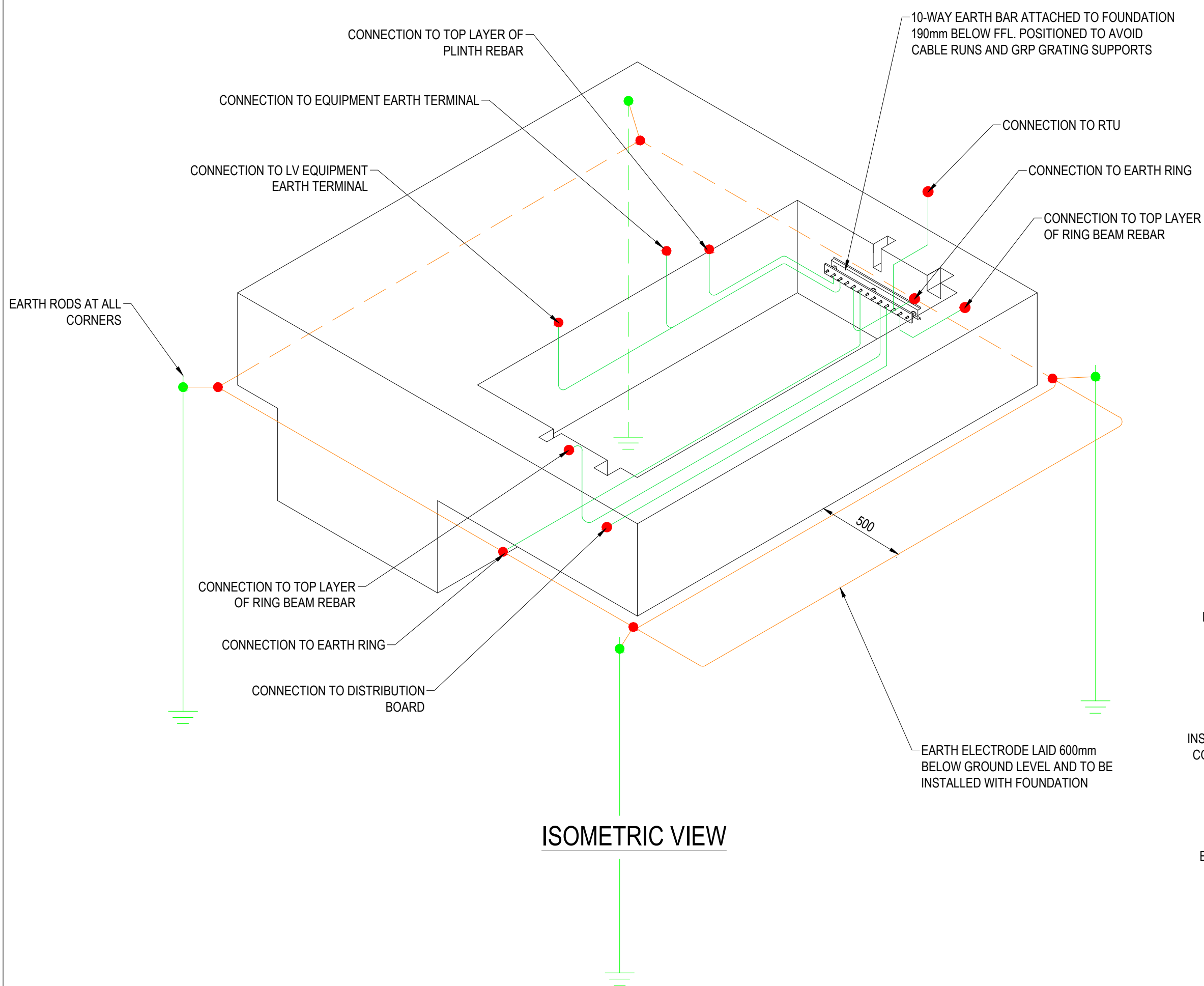


GRP CUT OUT FOR CABLE ENTRY

A	27-11-25	ORIGINAL	TM	TM
			PW	UKPN
Version	Date	Description	Checked	Dm.
			Approved	Design
				
TITLE				
GRP ENCLOSURE FOR A UNIT OR PADMOUNT SUBSTATION				
GRP FLOORING LAYOUT				
SCALE: NTS		@A1	APPROVED	Version
DRAWING NO. EDS 07-3102_01 SHEET 8 OF 5				A
SITE SECONDARY SUBSTATIONS				

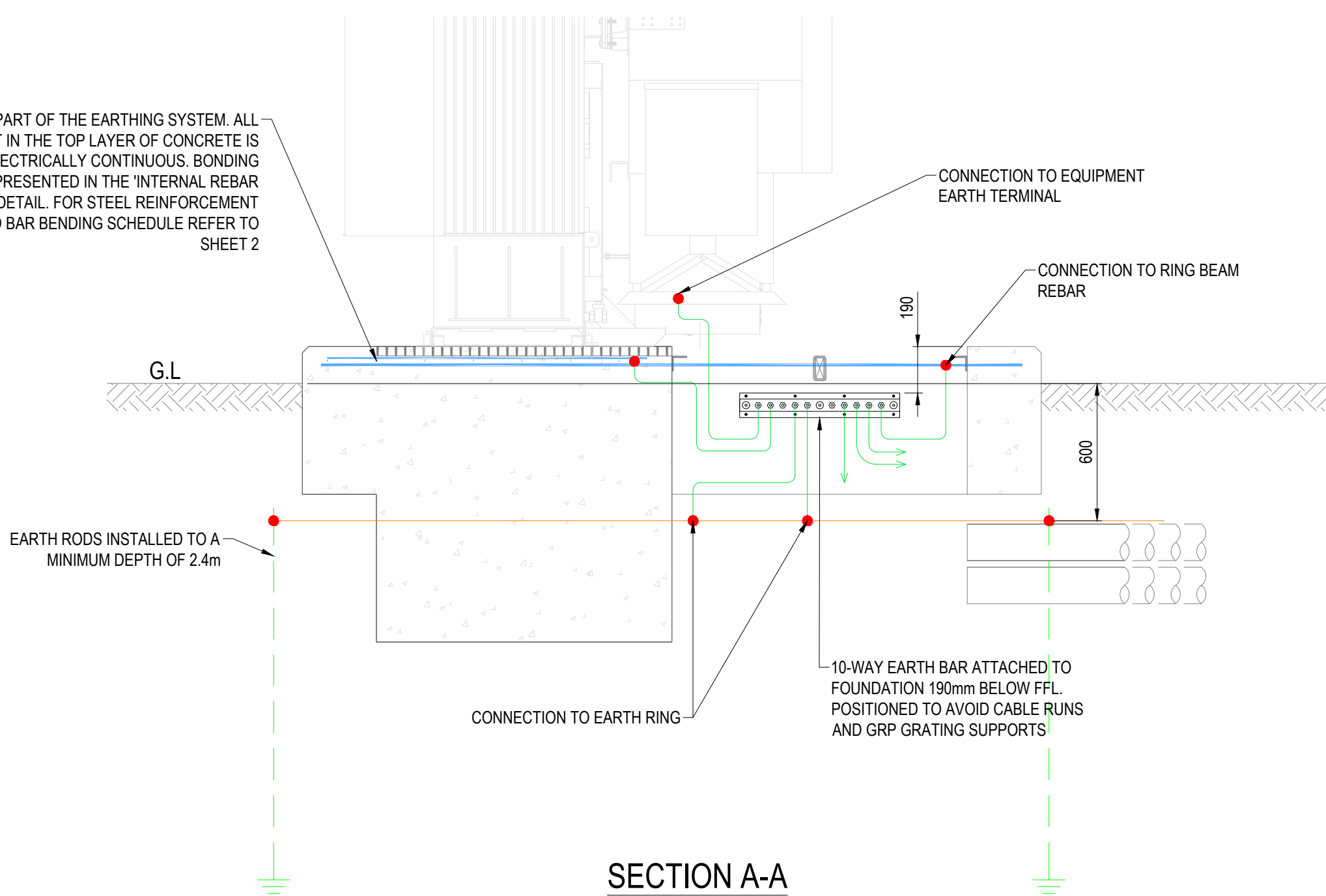


PLAN VIEW

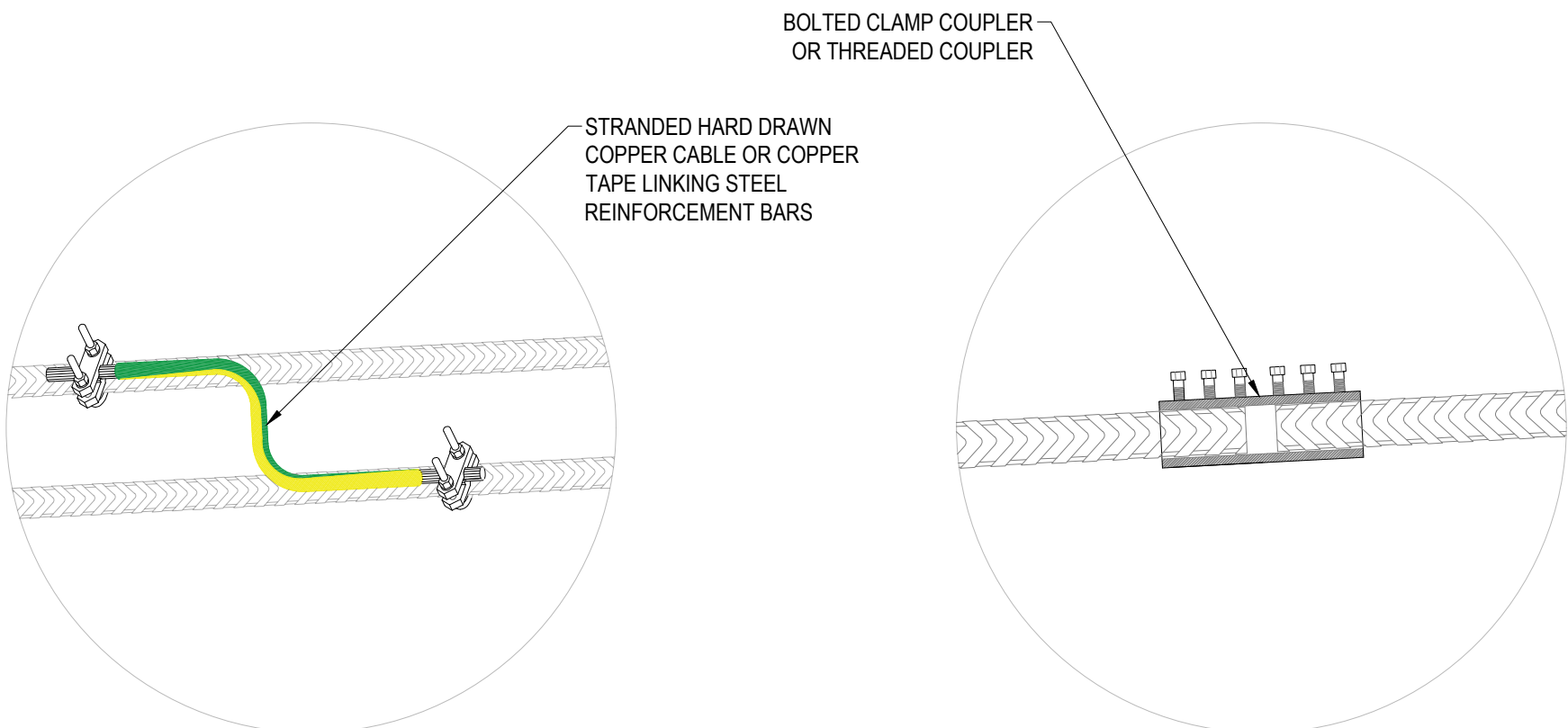


ISOMETRIC VIEW

REBAR IS PART OF THE EARTHING SYSTEM. ALL REINFORCEMENT IN THE TOP LAYER OF CONCRETE IS TO BE MADE ELECTRICALLY CONTINUOUS. BONDING OPTIONS PRESENTED IN THE 'INTERNAL REBAR CONNECTIONS' DETAIL. FOR STEEL REINFORCEMENT DETAILS AND BAR BENDING SCHEDULE REFER TO SHEET 2



SECTION A-A



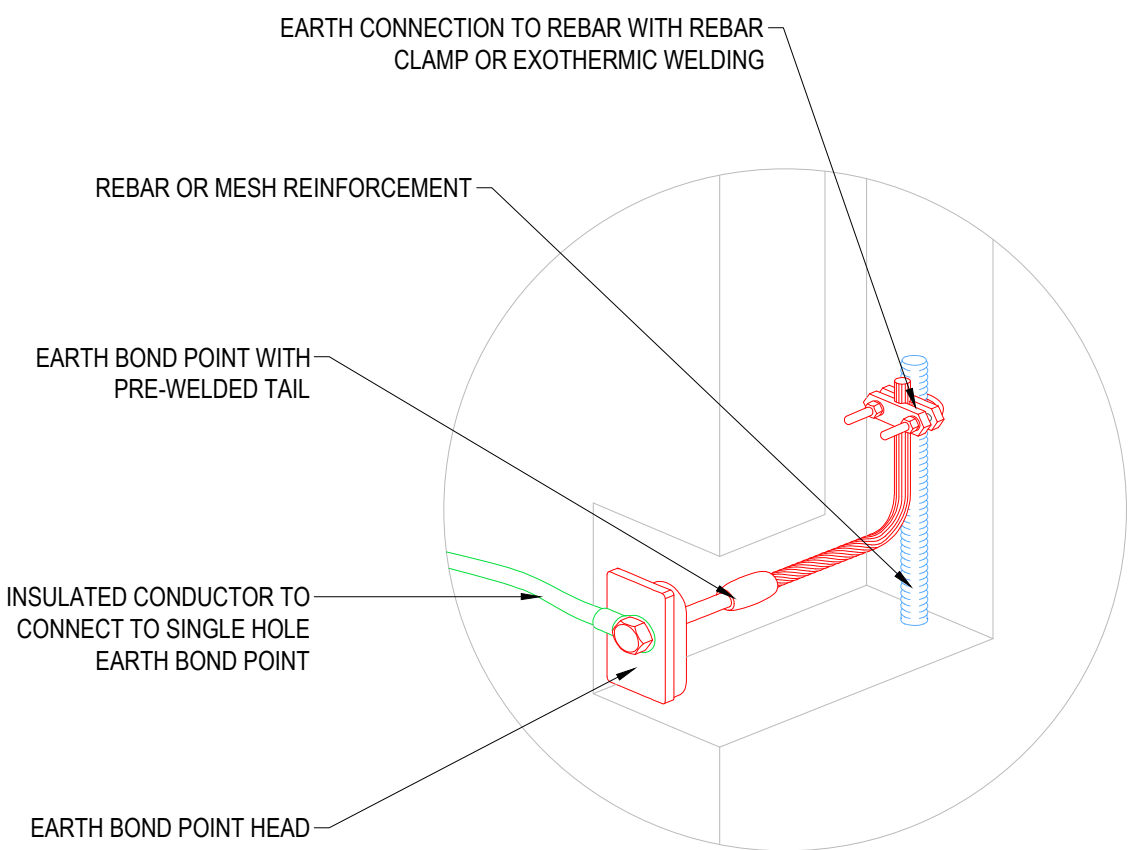
OPTION 1

STRANDED HARD DRAWN COPPER CABLE OR COPPER TAPE LINKING STEEL REINFORCEMENT BARS

OPTION 2

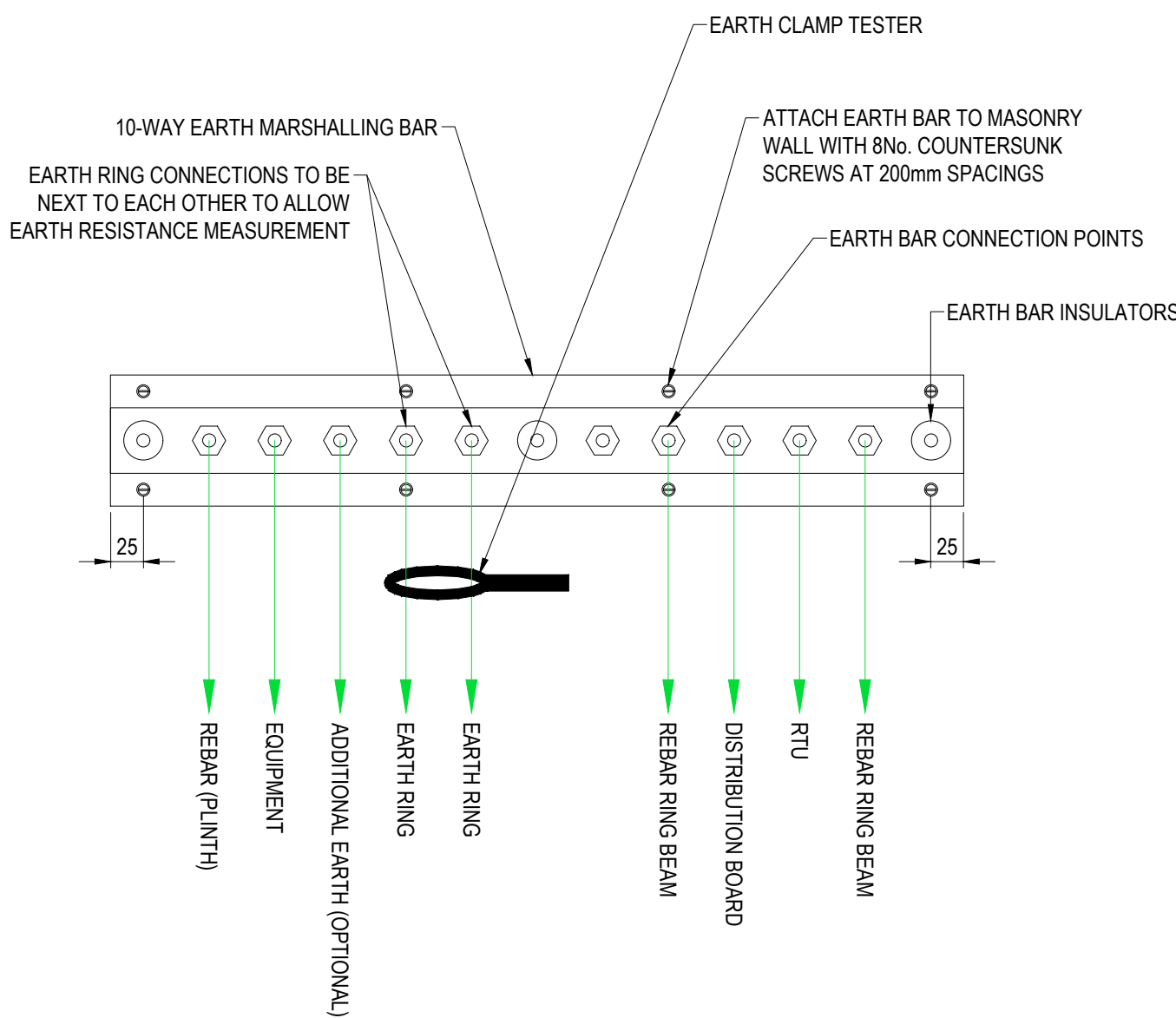
STEEL MECHANICAL COUPLERS PROVIDING EARTH CONTINUITY TO REINFORCEMENT BARS

INTERNAL REBAR CONNECTIONS FOR EARTH CONTINUITY



REBAR / EARTH CONNECTION METHOD DETAIL

EARTH BOND POINT TO BE CONNECTED TO REBAR OR MESH REINFORCEMENT PRIOR TO CASTING CONCRETE. HEAD OF EARTH BOND POINT TO BE ACCESSIBLE ONCE CONCRETE HAS BEEN CAST FOR CONDUCTOR CONNECTION



EARTH MARSHALLING BAR CONNECTIONS

NOTES:

1. THE EARTHING SYSTEM SHALL BE PROVIDED BY THE CUSTOMER UNLESS STATED OTHERWISE.
2. THE EARTHING SYSTEM IS INSTALLED FOR UK POWER NETWORKS' SOLE USE AND SHALL NOT BE INTERCONNECTED WITH ANOTHER EARTHING SYSTEM OR USED FOR ANY OTHER PURPOSE WITHOUT AGREEMENT FROM UK POWER NETWORKS.
3. THE EARTHING SYSTEM SHOULD BE INSTALLED IN ASSOCIATION WITH THE GROUND WORKS TO ENSURE THAT EARTH ELECTRODES ARE CORRECTLY POSITIONED PRIOR TO PLACEMENT OF CONCRETE.
4. FOR EARTHING SPECIFICATION SEE TABLE BELOW.

EARTHING SPECIFICATION	
SPECIFICATION	THE EARTHING SYSTEM SHALL BE DESIGNED IN ACCORDANCE WITH EDS 06-0014. UK POWER NETWORKS SHALL PROVIDE AN EARTHING FORM WITH THIS DRAWING SPECIFYING THE MAXIMUM STANDALONE TARGET EARTH RESISTANCE AND WHERE ADDITIONAL EARTH RODS OR OTHER EARTHING REQUIREMENTS ARE NECESSARY.
CONSTRUCTION	THE EARTHING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH ECS 06-0023.
MATERIALS	ALL MATERIALS SHALL BE SELECTED FROM EAS 06-0000a.
RODS	A MINIMUM OF FOUR EARTH RODS SHALL BE INSTALLED AS SHOWN ON THE DRAWING. TO BE CONFIRMED BY ELECTRICAL DESIGN. ADDITIONAL EARTH RODS MAY BE INSTALLED AS REQUIRED.
ELECTRODE / CONDUCTOR	THE ELECTRODE AND CONDUCTOR SHALL BE INSTALLED AS SHOWN ON THE DRAWING. ELECTRODE SHALL BE A MINIMUM OF 120mm² BARE STRANDED HARD DRAWN COPPER CABLE OR 25mm x 6mm COPPER TAPE (UNLESS OTHERWISE SPECIFIED IN THE EARTHING DESIGN). CONDUCTOR SHALL BE A MINIMUM OF 120mm² PVC COVERED STRANDED HARD DRAWN COPPER CABLE OR 25mm x 6mm PVC COVERED COPPER TAPE (UNLESS OTHERWISE SPECIFIED IN THE EARTHING DESIGN).
REBAR	REBAR IS PART OF THE EARTHING SYSTEM. ALL REINFORCEMENT IN THE TOP LAYER OF CONCRETE IS TO BE MADE ELECTRICALLY CONTINUOUS. BONDING OPTIONS PRESENTED IN THE 'INTERNAL REBAR CONNECTIONS' DETAIL.
BONDING	ALL EQUIPMENT SHALL BE BONDED IN ACCORDANCE WITH ECS 06-0023. NOT ALL EQUIPMENT BONDING IS SHOWN ON THE DRAWING.
LABELLING	THE EARTH BAR CONNECTIONS SHALL BE LABELLED IN ACCORDANCE WITH ECS 06-0023.
TESTING AND CERTIFICATION	THE EARTHING INSTALLER SHALL PROVIDE CERTIFICATION CONFIRMING THE RESISTANCE OF THE STANDALONE EARTHING SYSTEM. UK POWER NETWORKS (OR CONTRACTOR) SHALL COMPLETE THE EARTHING TEST FORM ECP 11-0503a

EARTHING KEY

- EARTH ROD
- ELECTRODE
- INSULATED CONDUCTOR
- CONNECTION

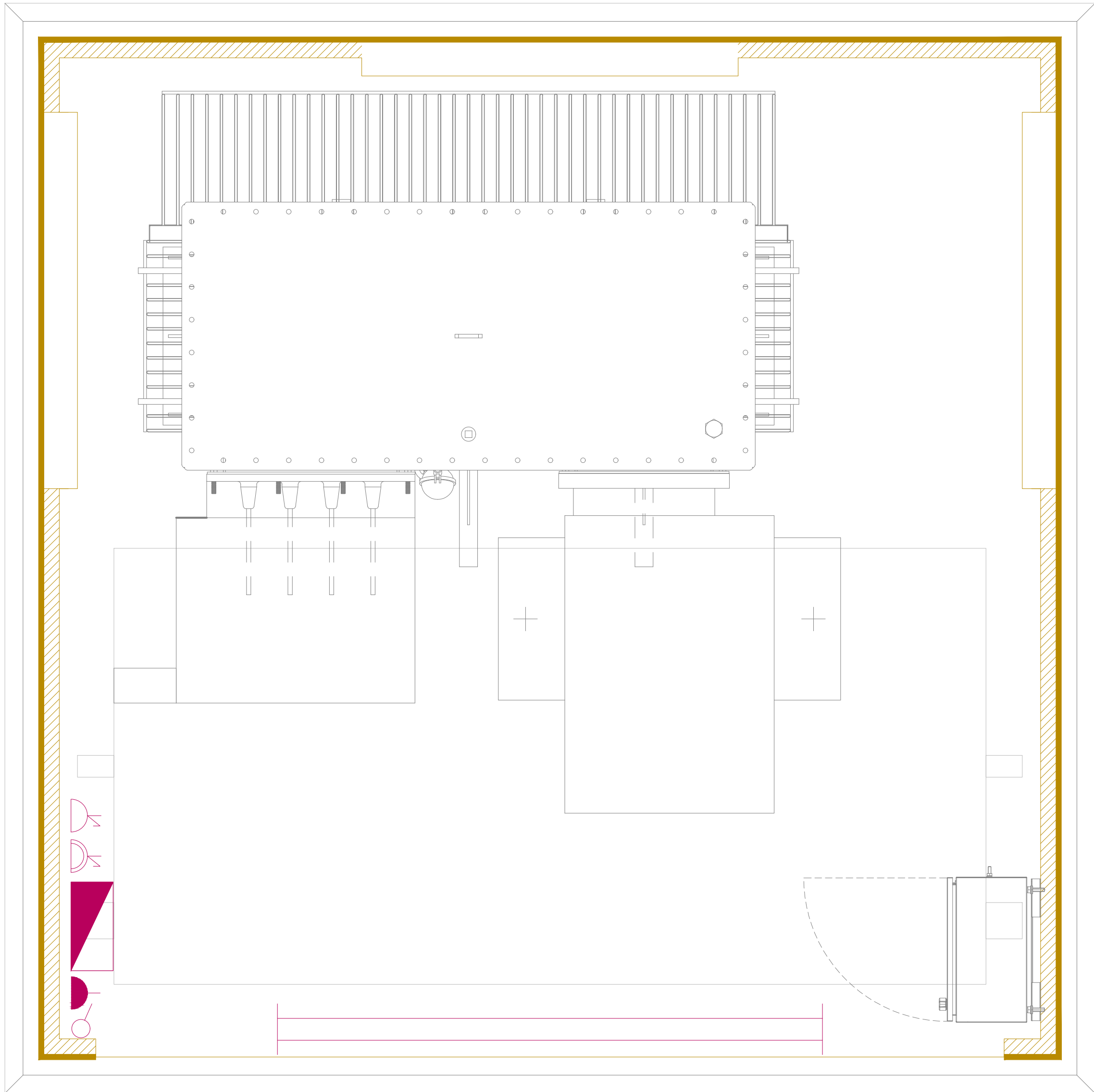
B	27-11-25	Major update	ST	TM
A	26-10-18	ORIGINAL	PW	UKPN
			UA	RDH
			UA	UKPN
Version	Date	Description	Checked Approved	Dm. Designed



TITLE
GRP ENCLOSURE FOR A
UNIT OR PADMOUNT SUBSTATION

EARTHING LAYOUT

SCALE	NTS	@A1	APPROVED	Version
DRAWING NO.	EDS 07-3102_01	SHEET 4 OF 5	B	
SITE	SECONDARY SUBSTATIONS			



PLAN VIEW

BUILDING SERVICES SPECIFICATION	
SPECIFICATION	ALL SUBSTATION ELECTRICAL SERVICES SHALL BE PROVIDED IN ACCORDANCE WITH EDS 07-1119. THE SUBSTATION LVAC SUPPLY SHALL BE PROVIDED IN ACCORDANCE WITH EDS 08-1112. THIS TABLE PROVIDES A SUMMARY OF MAIN REQUIREMENTS.
MATERIALS	ALL MATERIALS SHALL BE SELECTED FROM EAS 07-1000a. INTERNAL LIGHT FITTINGS SHALL BE MINIMUM IP55 LED AND EXTERNAL LIGHT FITTINGS SHALL BE MINIMUM IP65 LED. ACCESSORIES AND MOUNTING BOXES SHALL BE MINIMUM IP55 SURFACE MOUNTED FROM THE MK MASTERSEAL RANGE OR EQUIVALENT.
DISTRIBUTION BOARD	THE DISTRIBUTION BOARD SHALL BE A SINGLE-PHASE AND NEUTRAL MINIMUM IP55 INSULATED THERMOPLASTIC TYPE WITH A MINIMUM OF 6 WAYS (INTERNAL LIGHTING, 13A SOCKETS, 13A TEST SOCKET, RTU, SPARE, SPARE). ALL MCBs AND RCBO RATINGS SHALL BE IN ACCORDANCE WITH EDS 07-1119. THE DISTRIBUTION BOARD SHALL BE MOUNTED AT A HEIGHT OF 1400mm ABOVE FFL
INTERNAL LIGHTING	INTERNAL LIGHT FITTINGS SHALL BE INSTALLED AS SHOWN ON THE DRAWING WITH ADDITIONAL LIGHT FITTINGS AS REQUIRED TO PROVIDE ADEQUATE LUMINANCE TO ALL AREAS. EMERGENCY LIGHT FITTINGS SHALL BE INSTALLED AS SHOWN ON THE DRAWING. LIGHT FITTINGS SHALL BE MOUNTED AT A TYPICAL HEIGHT OF 1800mm ABOVE FFL AND BE POSITIONED TO ALLOW LAMP REPLACEMENT AND MAINTENANCE FROM FLOOR LEVEL. LIGHT FITTINGS SHALL BE POSITIONED TO AVOID SHADOWS WHEN EQUIPMENT DOORS ARE OPEN. LIGHT FITTINGS SHOULD BE CONNECTED VIA A PLUG IN ROSE. SWITCHROOMS WITH MULTIPLE ACCESS POINTS SHALL HAVE A LIGHT SWITCH ADJACENT TO EACH ACCESS POINT WIRED FOR 2-WAY LIGHTING. ALL LIGHT SWITCHES SHALL BE MOUNTED AT 1200-1400mm ABOVE FFL.
EXTERNAL LIGHTING	EXTERNAL LIGHT FITTINGS SHALL BE INSTALLED AS SHOWN ON THE DRAWING
POWER	13A SOCKETS AND FUSED CONNECTION UNITS SHALL BE INSTALLED AS SHOWN ON THE DRAWING. RADIAL CIRCUITS SHALL BE USED FOR ALL POWER CIRCUITS. TEST EQUIPMENT SOCKETS SHALL LABELLED AS 'TEST EQUIPMENT SOCKET ONLY' AND SUPPLIED VIA A SEPARATE MCB. SOCKETS SHALL BE MOUNTED AT 500-1000mm ABOVE FFL AND FUSED CONNECTION UNITS SHALL BE MOUNTED TO SUIT THE FIXED EQUIPMENT THEY ARE SUPPLYING.
CABLES AND CONTAINMENT	ALL CABLE CORES SHALL BE IDENTIFIED USING PHASE OR NEUTRAL COLOURS IN ACCORDANCE WITH BS 7671 FOR THE COMPLETE LENGTH OF THE CABLE. ALL CABLES SHALL USE STRANDED COPPER CONDUCTORS WITH THE FOLLOWING MINIMUM CSA: CUT-OUT TAILS 25mm², LIGHTING 1.5mm², POWER 4.0mm², FLEXIBLE LIGHTING 0.75mm², FLEXIBLE POWER 1.5mm². ALL CABLES, EXCEPT ARMoured CABLES AND CUT-OUT TAILS, SHALL BE ENCLOSED IN CONDUIT OR TRUNKING. CABLE TRAY SHALL BE USED WHERE REQUIRED.
BONDING	ALL BONDING SHALL COMPLY WITH BS 7671.
LABELLING	ALL DISTRIBUTION BOARD WAYS SHALL BE PERMANENTLY LABELLED TO IDENTIFY CIRCUIT FUNCTION, CABLE SIZE AND PROTECTIVE DEVICE RATING. ALL LABELLING SHALL COMPLY WITH BS 7671.
SUBSTATIONS WITH SEPARATE HV-LV EARTHS	ALL LIGHTING AND RTU SUPPLIES FROM AUXILIARY TERMINALS SHALL BE VIA AN ISOLATION TRANSFORMER. ALL SOCKETS SHALL BE DISCONNECTED OR REMOVED. REFER TO ECS 06-0023 FOR FURTHER INFORMATION.
TESTING AND CERTIFICATION	ON COMPLETION OF THE WORKS, THE INSTALLATION SHALL BE TESTED IN ACCORDANCE WITH BS 7671. AN ELECTRICAL INSTALLATION CERTIFICATE AND A SCHEDULE OF TEST RESULTS AS DETAILED IN BS 7671 SHALL BE FORWARDED TO UK POWER NETWORKS.

- NOTES:
- THE FINAL LOCATION OF ALL EQUIPMENT SHALL BE AGREED WITH UK POWER NETWORKS PRIOR TO INSTALLATION WORKS COMMENCING ON SITE.
 - ALL WORK AND TESTING SHALL BE CARRIED OUT BY SUITABLY COMPETENT OPERATIVES IN ACCORDANCE WITH BS 7671.
 - FOR BUILDING SERVICES SPECIFICATION SEE SPECIFICATION TABLE.

BUILDING SERVICES KEY	
	1500mm TWIN LED WALL MOUNTED LIGHT
	13A UNSWITCHED FUSED CONNECTION UNIT FOR RTU
	13A SWITCHED SINGLE SOCKET LABELLED FOR TEST EQUIPMENT
	13A SWITCHED DOUBLE SOCKET
	LIGHT SWITCH
	DISTRIBUTION BOARD

B	27-11-25	Major update	ST	TM
A	26-10-18	ORIGINAL	PW	UKPN
			UA	RDH
			UA	UKPN
Version	Date	Description	Checked Approved	Dm. Designed

TITLE			
GRP ENCLOSURE FOR A UNIT OR PADMOUNT SUBSTATION			
SMALL POWER & LIGHTING			
SCALE	NTS	@A1	APPROVED
DRAWING NO.			Version
EDS 07-3102_01 SHEET 5 OF 5			B
SITE			
SECONDARY SUBSTATIONS			