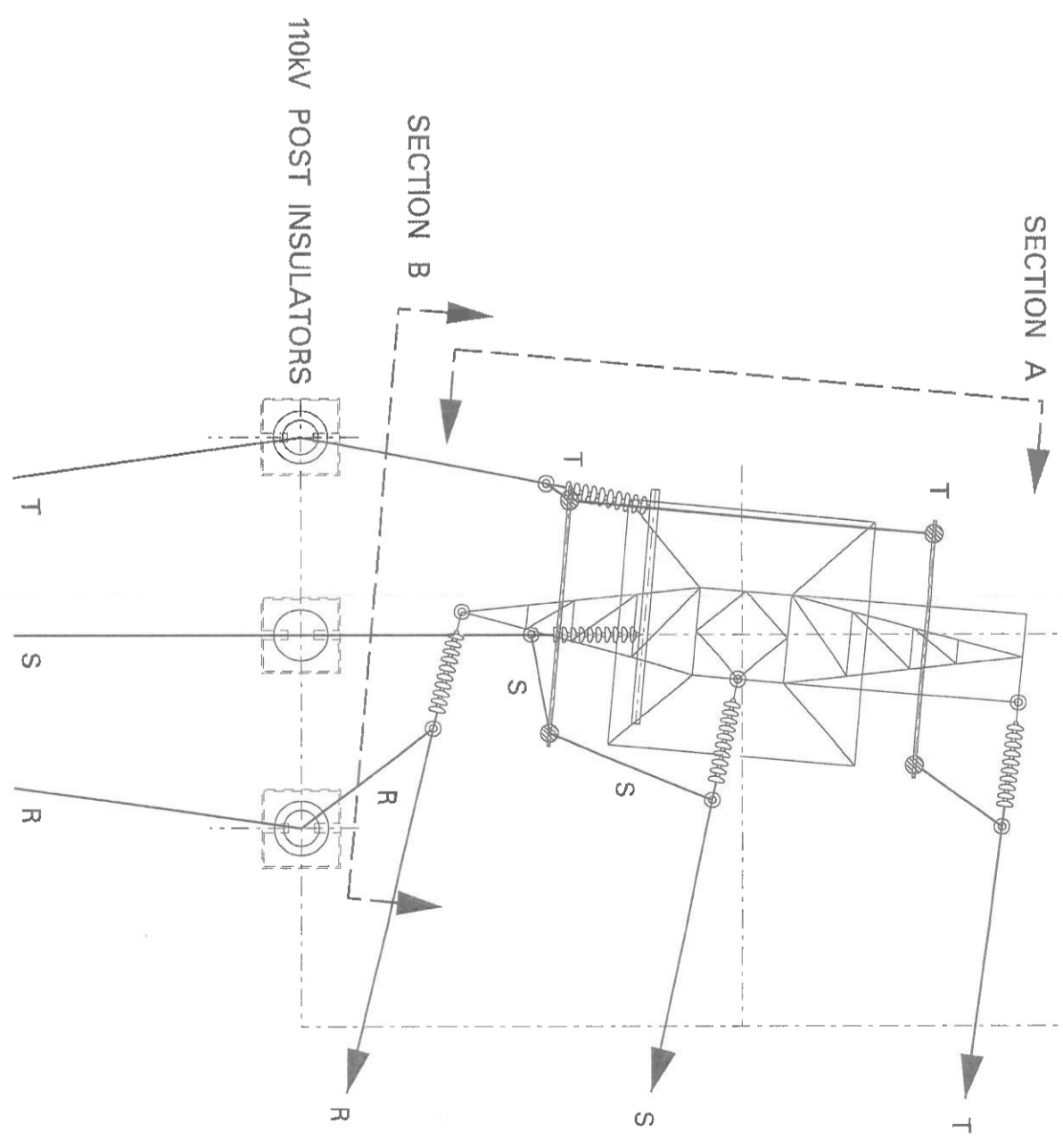
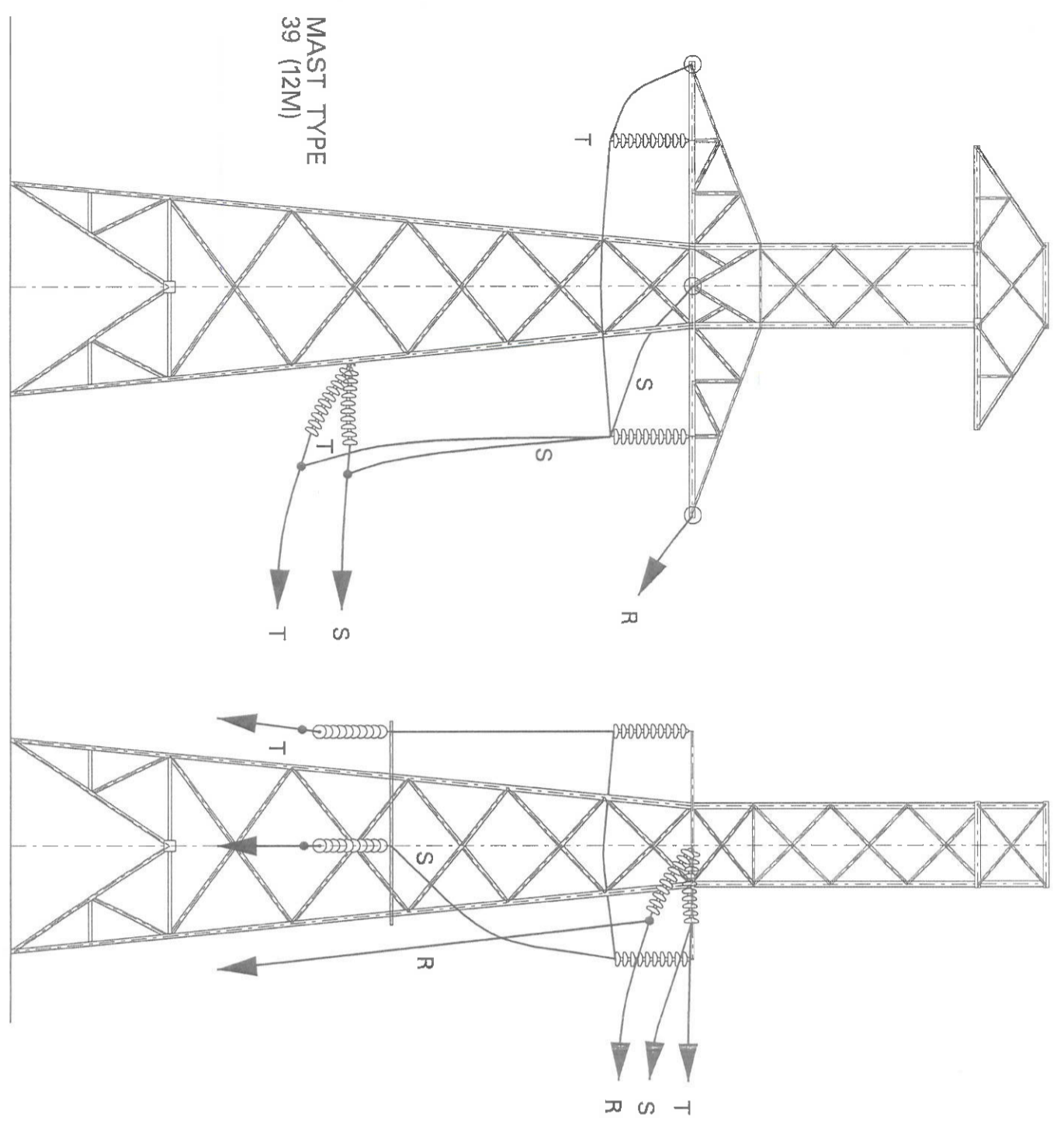


AN BORD PLEANÁLA

22nd 2020

LTR DATED _____
 LDG- _____
 ABP- 308511-20

Approved



SECTION A

SECTION B

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 ESB Engineering Ltd registered in Ireland No. 55249 Registered office as above

REVISION DESCRIPTION:

PURPOSE OF ISSUE -
 PRELIMINARY UNLESS INDICATED
 TENDER CLIENT APPROVAL
 CONSTRUCTION AS-BUILT
 REVISED FOR INFORMATION

CLIENT:
 ELECTRICITY SUPPLY BOARD
 NETWORKS

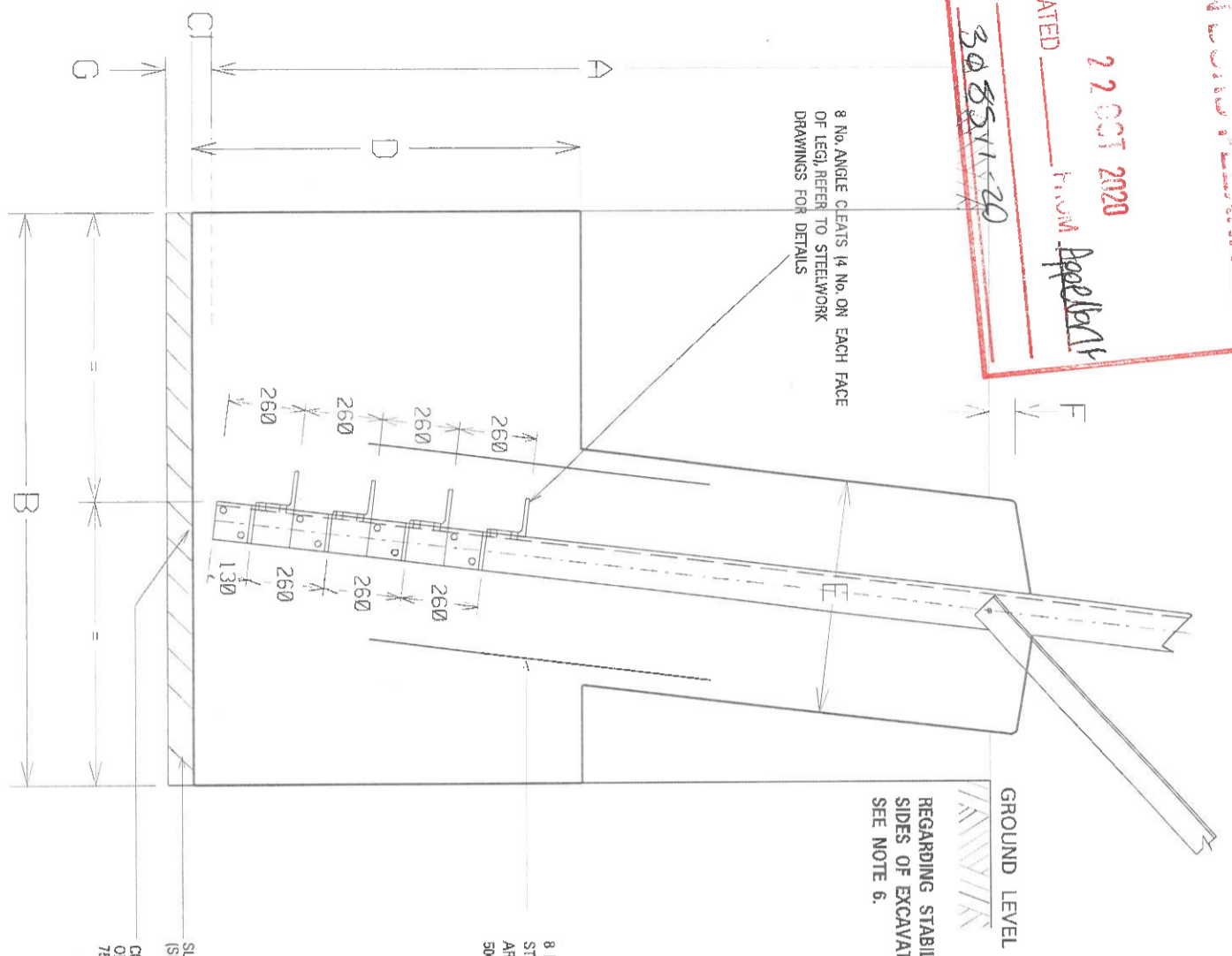
PROJECT:
 TONROE 110KV SUBSTATION

DRAWING TITLE:
 TONROE 110KV STATION
 END MAST DETAILS
 FLAGFORD 110KV LINE

DRAWN E. HUDSON	CHECKED M. MOONEY	APPROVED J. KING	APPD DATE 25/11/02
CLIENT REF TC28400	No. of Sfts 1	SIZE A3	SCALE N/A
DRAWING NUMBER PE492-D121-053-001-000		SHEET REV 001-000	

1461E EXCLUDING SW PEAK FOR FOUNDATION TYPE BC

AM CONSULTANTS
 22 OCT 2020
 LTR DATED 22 OCT 2020
 LDG- 308511-20
 ABP- 308511-20
 FROM Papelet
 Papelet



DIMENSION	A	B	C	D	E	F	G
mm	3000	2200	75	1500	900	100	100

FOUNDATION LOADS

MAX UPLIFTEG = 50,680kgs = 497kN
 MAX COMPRESSION LEG = 59,145kgs = 580kN
 TRANSVERSE SHEARLEG = 11,217kgs = 110kN
 LONGITUDINAL SHEARLEG = 8974kgs = 88kN

ASSOCIATED DRAWINGS

TOWER PEGGING -- PG567-D012-071-006
 TOWER ERECTION -- PG567-D004-447
 TYPE A FOUNDATION -- PG567-D012-071-001
 TYPE C FOUNDATION -- PG567-D012-071-003
 TYPE CD FOUNDATION -- PG567-D012-071-004

- NOTES:**
1. ALL FOUNDATIONS ARE TO BE INSTALLED SAFELY IN ACCORDANCE WITH BOTH THE CURRENT CONSTRUCTION REGULATIONS AND GENERAL APPLICATION REGULATIONS.
 2. REFER TO PG567-S010-001-005 ESB NETWORKS GENERIC WORK DESCRIPTION FOR 110KV, 220KV & 400KV LINES.
 3. THIS DRAWING DETAILS THE TYPE BC FOUNDATION. THE SIDES OF THIS TYPE OF BASE MUST BE CAST AGAINST UNDISTURBED SOIL.
 4. THE STUB (OR STUB & BASE) SHALL BE POSITIONED ACCURATELY IN ACCORDANCE WITH THE PEGGING DRAWING IN ORDER TO ACHIEVE THE REQUIRED TOLERANCES SET OUT IN THE GENERIC WORK DESCRIPTION AFTER THE CONCRETE HAS SET.
 5. TOP SOIL TO BE STRIPPED PRIOR TO EXCAVATION & REPLACED AS LAST LAYER OF BACK FILLING.
 6. THE DESIGN RISK ASSESSMENT RELATING TO THIS ELEMENT OF THE WORKS IS CONTAINED WITHIN THE PROJECT SPECIFIC PRELIMINARY HEALTH & SAFETY PLAN.
 7. EXCAVATED MATERIAL SHALL BE PLACED A MINIMUM OF 3m AWAY FROM EDGE OF EXCAVATION IN ORDER TO REDUCE RISK OF COLLAPSE.
 8. PRIOR TO PLACING OF CONCRETE THE EXCAVATION SHALL BE CLEAR OF ALL SURPLUS MATERIAL AND DEBRIS. ALL CONCRETE SURFACES AT JOINTS SHALL BE WIRE BRUSHED TO REMOVE ANY LOOSE MATERIAL BEFORE POURING OF NEW CONCRETE.
 9. ANY WATER IN THE EXCAVATION SHALL BE REMOVED BEFORE NEW CONCRETE IS PLACED.
 10. THE CONTRACTOR MUST REPORT EXCAVATIONS WHERE THERE IS STRONG WATER INGRESS. A HIGH WATER TABLE, COLLAPSE OF THE EXCAVATION SIDES OR PEAT PRESENT TO THE ESB REPRESENTATIVE. THE GENERAL FOUNDATION TYPE GIVEN OPPOSITE WILL NEED TO BE REVIEWED AT SUCH LOCATIONS BY ESB.
 11. SUB BASE MAY BE CONCRETE OR, WHERE AGREED WITH ESB NETWORKS, GRADED GRANULAR MATERIAL.
 12. CONCRETE TO BE IN ACCORDANCE WITH ESB SPECIFICATION PG567-S04-010-001. THE CONCRETE SHALL HAVE A MINIMUM CHARACTERISTIC CUBE STRENGTH OF 35N/mm².
 13. NOMINAL CONCRETE COVER TO STEEL REINFORCEMENT UNLESS OTHERWISE NOTED TO BE 50mm EXCEPT WHEN AGAINST AN EARTH FACE WHERE IT SHALL BE 75mm.
 14. ALL CONCRETE TO BE WELL VIBRATED DURING PLACING.
 15. ALL BACKFILL SHOULD BE WELL COMPACTED IN LAYERS OF NO MORE THAN 500mm.
 16. THE INSTALLATION OR REMOVAL OF TEMPORARY WORKS MUST NOT DAMAGE OR DISTURB THE FOUNDATION.
 17. WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFIC WORKS DESCRIPTION AND SHALL COMPLY WITH CURRENT IRISH AND EUROPEAN CONSTRUCTION STANDARDS WITH ALL AMENDMENTS.
 18. ALL CONSTRUCTION METHODS MUST BE SUBMITTED TO ESB NETWORKS FOR REVIEW BEFORE UNDERTAKING WORK.
 19. THE CONTRACTOR IS TO PROVIDE IN HIS METHOD STATEMENT DETAILS OF MEASURES TO BE TAKEN TO CONTROL CRACKING OF NEWLY PLACED CONCRETE DUE TO THERMAL EFFECTS. IF POURS ARE 1m DEEP OR GREATER THE CONCRETE SHOULD BE THERMALLY INSULATED UNTIL THE NEXT POUR OR BACKFILLING IS CARRIED OUT. IF MORE THAN ONE POUR IS PROPOSED FOR THE MAIN PAD, THE CONTRACTOR IS TO REVERT TO ESB DESIGNER FOR REINFORCEMENT DETAILS FOR BONDING THE TWO POURS TOGETHER.
 20. ALL EXPOSED CORNERS TO HAVE A 25mm CHAMFER.
 21. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

BENDING SCHEDULE TO BS4466 : 1988

MEMBER	BAR MARK	TYPE AND SIZE	No. OF MEMBERS EACH	No. OF BARS IN EACH	TOTAL No.	LENGTH OF EACH BAR IN mm	SHAPE CODE	A	B	C	D	EA
MK1	01	T12	1	8	8	1900		mm	mm	mm	mm	mm
								mm	mm	mm	mm	mm

CALCULATION REFERENCE FILE: PG567-F0001-C012-019-000

Revision Description

Purpose of issue - Preliminary unless indicated

Client Approval Construction As-built Revised

ESB International

ESBI Engineering Solutions, Stephen Court, 18-21 St. Stephen's Green, Dublin 2, Ireland. Tel: (01) 709 5000 Fax: (01) 709 7188

ESBI Engineering Solutions & Energy Assets of ESB Engineering & Facility Management Limited

Client: ESB NETWORKS

Project: Foundations

Contract:

Production Unit: High Voltage Engineering

Drawing Title: TYPE 1461E TOWER EXCLUDING SHIELDWIRE PEAK TYPE BC FOUNDATION

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Drawn: Produced: ELOwlor

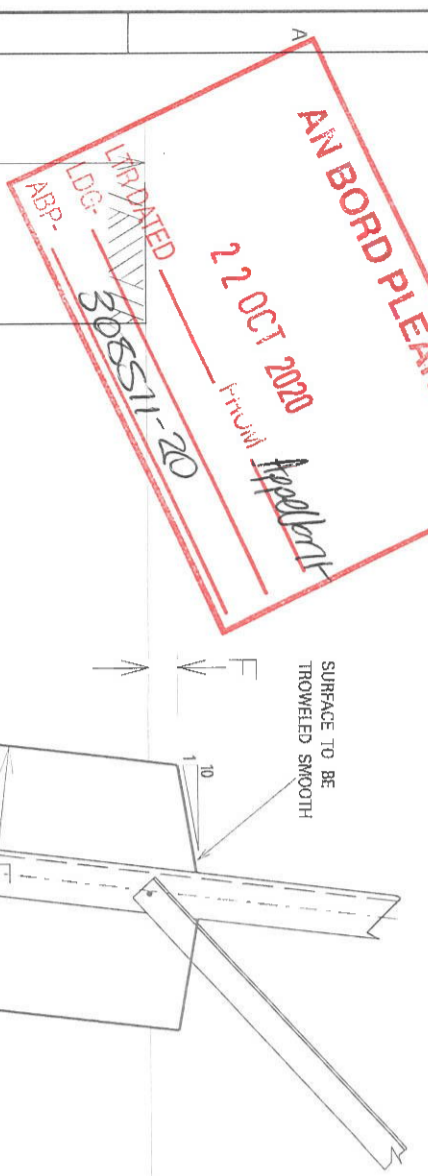
Checked: ELOwlor

Client Ref: TC203982

Drawing Number: PG567-D012-071-002-000

S-EET R-EV

1461E EXCLUDING SW PEAK FOR FOUNDATION TYPE CD



DIMENSION	A	B	C	D	E	F	G
mm	3000	2800	75	1500	900	100	100

FOUNDATION LOADS
 MAX UPLIFTEG = 50,880kgs = 497kN
 MAX COMPRESSION LEG = 59,145kgs = 580kN
 TRANSVERSE SHEARLEG = 11,217kgs = 110kN
 LONGITUDINAL SHEARLEG = 8974kgs = 88kN

ASSOCIATED DRAWINGS
 TOWER PEGGING : PG567-D012-071-008
 TOWER ERECTION : PG567-D004-447
 TYPE A FOUNDATION : PG567-D012-071-001
 TYPE BC FOUNDATION : PG567-D012-071-002
 TYPE C FOUNDATION : PG567-D012-071-003

REGARDING STABILITY OF SIDES OF EXCAVATION SEE NOTE 6.

SUB BASE (SEE NOTE 1)
 COVER TO BOTTOM OF STUB TO BE 75mm (SEE NOTE 4)

8 No. 12mm REINFORCING MK1 STEEL BARS EQUALLY SPACED AROUND NECK AND HAVING 500mm MINIMUM IN-NECK

NOTES:
 1. ALL FOUNDATIONS ARE TO BE INSTALLED SAFELY IN ACCORDANCE WITH BOTH THE CURRENT CONSTRUCTION REGULATIONS AND GENERAL APPLICATION REGULATIONS.
 2. REFER TO PG567-S010-001-005 ESB NETWORKS GENERIC WORK DESCRIPTION FOR 110KV, 220KV & 400KV LINES.
 3. THIS DRAWING DETAILS THE TYPE CD FOUNDATION. THE SIDES OF THIS TYPE OF BASE MAY BE CAST AGAINST DISTURBED SOIL.
 4. THE STUB (OR STUB & BASE) SHALL BE POSITIONED ACCURATELY IN ACCORDANCE WITH THE PEGGING DRAWING IN ORDER TO ACHIEVE THE REQUIRED TOLERANCES SET OUT IN THE GENERIC WORK DESCRIPTION AFTER THE CONCRETE HAS SET.
 5. TOP SOIL TO BE STRIPPED PRIOR TO EXCAVATION & REPLACED AS LAST LAYER OF BACK FILLING.
 6. THE DESIGN RISK ASSESSMENT RELATING TO THIS ELEMENT OF THE WORKS IS CONTAINED WITHIN THE PROJECT SPECIFIC PRELIMINARY HEALTH & SAFETY PLAN.
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 21. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

BENDING SCHEDULE TO BS4446 : 1988

MEMBER	BAR MARK	TYPE AND SIZE	No. OF MEMBERS	No. OF BARS IN EACH	TOTAL No.	LENGTH OF EACH BAR IN mm	SHAPE CODE	A mm	B mm	C mm	D mm	EA mm
MK1	01	T12	1	8	8	1600	20	1600				

CALCULATION REFERENCE FILE: PG567-F0001-C012-019-000

Revision Description

Purpose of issue - Preliminary unless indicated

Client Approval Construction As-built Revised

ESB International

ESB Energy Innovation

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Email: info@esb.ie marketing@esb.ie procurement@esb.ie

ESB Engineering Solutions is a member of the ESB International Group. Registered Office in Ireland: 18/21 St. Stephen's Green, Dublin 2, Ireland.

Client: ESB NETWORKS

Project: Foundations

Contract: Foundations

Production Unit: High Voltage Engineering

Drawing Title: 110KV LINES EXCLUDING SHIELDWIRE PEAK TYPE CD FOUNDATION

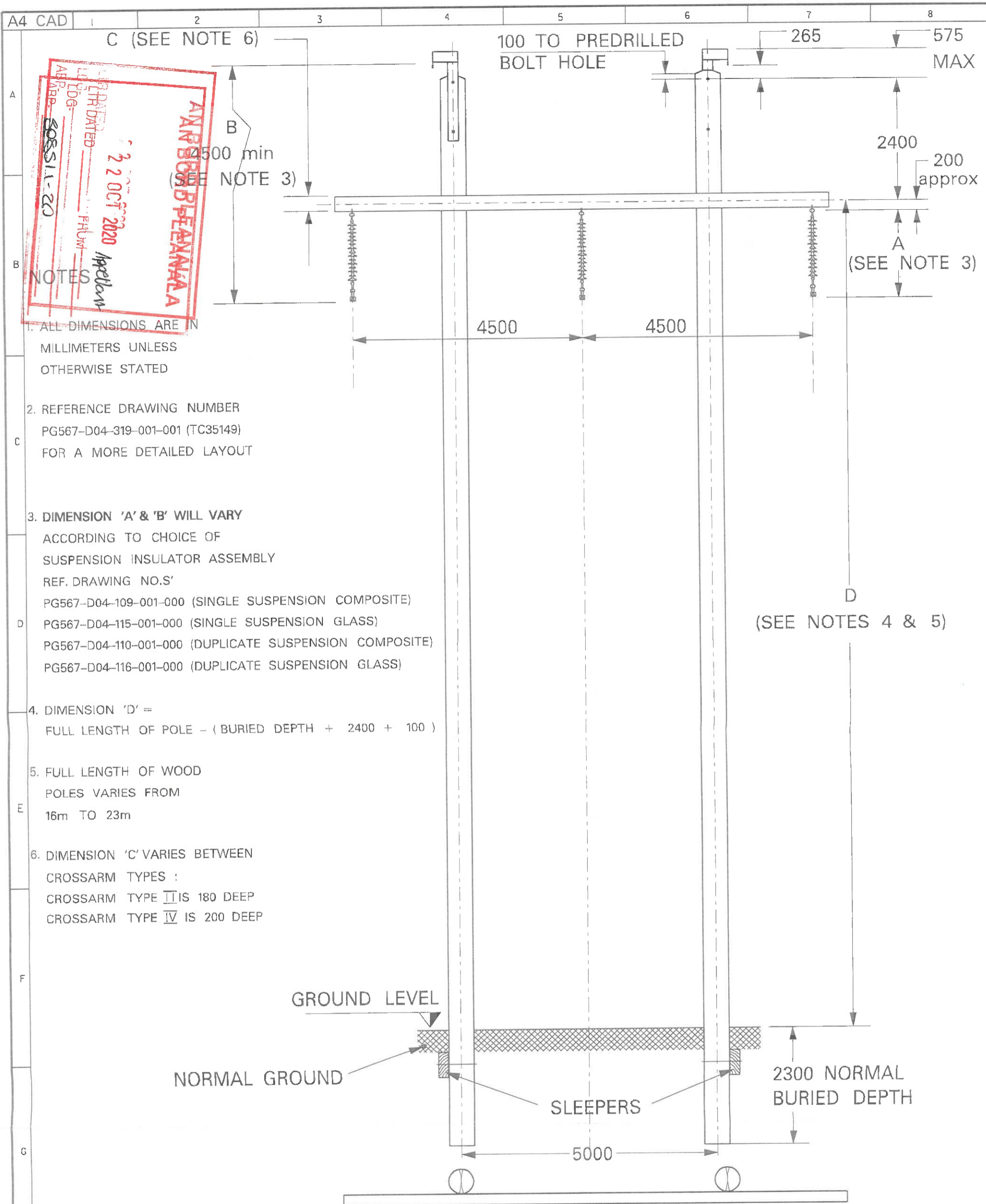
Drawn: E.C.W./C

Produced: E.L.O./C

Client Ref: TC203982

Drawing Number: PG567-D012-071-004-000

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 Registered Office as above
 Registered in Ireland No. 155249

Rev	Date	Revision Description	Drn	Prod	Var	App
4	13/2/08	Drawing formatted for correct scaling	PF	PF	SH	WM
3	30/1/08	General revisions	PF	PF	SH	WM
2	2/3/07	Added Plan View, Updated Pole Top Dimensions & Printing to Scale	MB	MB	PE	COL
1	2/3/07	Crossarm Position Set at 2.4m	MB	MB	PE	COL
0	8/12/05	Initial Issue	MB	MB	OA	COL

Drawn N.POWER	Produced P.Finlay	Verified S.Hartnett	Approved W.Mongey	Approved date 13/02/08
Client Ref TC19683			No. of Shts 1	Size A4
Drawing Number PG567-D04-123-001-004			SHEET REV	Scale 1:100

Client
EirGrid / ESB NETWORKS

Project
GENERIC LINES DOCUMENTS

Contract
N/A

Production Unit
High Voltage Engineering

Drawing Title
**110kV LINES
SUSPENSION
PORTAL WOOD POLE SET
WITH SHIELDWIRE
FOR 200mm/300mm/430mm ACSR LINES**

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