सत्यमेव जयते

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन एवं राजमार्ग मंत्रालय, भारत सरकार)

NATIONAL HIGHWAYS AUTHORITY OF INDIA

(Ministry of Road Transport and Highways, Govt. of India)

क्षेत्रीय कार्यालय / REGIONAL OFFICE

ई-6/47, स्मृति परिसर, साईबोर्ड के पास, अरेरा कॉलोनी, भोपाल (म.प्र.)-462016

E-6/47, Smriti Parisar, Near Sai Board, Arera Colony, Bhopal (M.P.)-462016

दूरभाष/Phone: 0755-2426638, फैक्स/Fax: 0755-2426698, ई-मेल/E-mail ID: robhopal@nhai.org

भाराराप्रा/क्षे.का.-म.प्र./आगरा-ग्वालियर/765 के.वी./2026/56290 दिनांक 02.01.2026

Invitation of Public Comments/ सार्वजनिक टिप्पणियों का आमंत्रण

विषय: उत्तर प्रदेश राज्य में तहसील-खेरागढ़, जिला-आगरा के सैंया गांव के पास आगरा-ग्वालियर एनएच-44 के (चेनेज 129 किमी से 130 किमी तक) पर 765 केवी डी/सी दौसा-घिरोर टी/एल पार्ट-III (पीजीसीआईएल) की ओवरहेड क्रॉसिंग किए जाने की अनुमति बावत्।

संदर्भ: परियोजना निदेशक-ग्वालियर का ई-फाईल (कंप्युटर) नं. 301918.

1. परियोजना निदेशक, पीआईयू-ग्वालियर, भाराराप्रा द्वारा ई-ऑफिस क्रमांक **301918** के माध्यम से **उत्तर प्रदेश राज्य में तहसील-खेरागढ़, जिला-आगरा के सैंया गांव के पास आगरा-ग्वालियर एनएच-44 के (चेनेज 129 किमी से 130 किमी तक) पर 765 केवी डी/सी दौसा-घिरोर टी/एल पार्ट-III (पीजीसीआईएल) की ओवरहेड क्रॉसिंग किए जाने**हेतु प्रस्ताव प्रस्तुत किया है।

   PD, PIU-Gwalior, NHAI vide e-office no. **301918** has submitted the proposal for **Permission for laying of overhead crossing of 765 KV D/C Dausa-Ghiror T/L Part-III (PGCIL) on NH-44 near Saiyan Village, Tehsil -Kheragarh, District – Agra (from chainage 129 km to 130 km) in the state of Uttar Pradesh.**

2. मंत्रालय के कार्यालय ज्ञापन संख्या OM No. RW/NH-33044 S&R (R) dated 22.11.2016 के अनुसार, दावे और आपत्तियां (सार्वजनिक असुविधा, सुरक्षा और सामान्य सार्वजनिक हित के आधार पर) मांगने के लिए आवेदन को 30 दिनों के लिए सार्वजनिक डोमेन में रखा जाएगा।

   As per Ministry vide OM No. RW/NH-33044 S&R (R) dated 22.11.2016, the application shall be put out in public domain for **30 days** for seeking claims and objections (on ground of public inconvenience, safety and general public interest).

3. तदनुसार, दावे और आपत्तियां मांगने के लिए उपरोक्त प्रस्ताव (आवेदन की प्रति संलग्न) पर 30 दिनों के भीतर (यानी **02.02.2026** तक) सार्वजनिक पोर्टल (यानी MoRT&H की वेबसाइट (www.morth.nic.in)) पर जनता की टिप्पणियां आमंत्रित की जाती हैं, जिसके बाद किसी भी टिप्पणी पर विचार नहीं किया जाएगा। टिप्पणी आमंत्रित करने वाले प्राधिकारी का पता इस प्रकार है:

Shivangee 02/01/2026

Accordingly, the public comments are hereby invited on the above proposal (copy of application enclosed) for seeking claims and objections within 30 days (i.e. by **02.02.2026**) on public portal (i.e. website of MoRTH (www.morth.nic.in)) beyond which no comments will be considered. The address of comments inviting authority is as under:

राजमार्ग प्रशासक, क्षेत्रीय अधिकारी कार्यालय भारतीय राष्ट्रीय राजमार्ग प्राधिकरण, ई-6/47, स्मृति परिसर, साईं बोर्ड अरेरा कॉलोनी के पास, भोपाल (मप्र)-462016	The Highway Administrator O/o Regional Officer, National Highways Authority of India E-6/47, Smriti Parisar, Near Sai Board Arera Colony, Bhopal (MP)-462016

यह पत्र राजमार्ग प्रशासक सह क्षेत्रीय अधिकारी के अनुमोदन उपरान्त जारी किया जा रहा है।
This is being issued with the approval of Highway Administrator-cum-Regional Officer.

Shivangee
02/02/2026

(शिवांगी बरनवाल)
उप प्रबंधक (तक.)

संलग्नः उपरोक्तानुसार।

प्रतिलिपिः

1. **वेब एडमिन, भा.रा.रा.प्रा.,** मुख्यालय, नई दिल्ली की ओर सर्वजनिक टिप्पणियों के लिए भा.रा.रा.प्रा. की वेबसाइट पर अपलोड करने के अनुरोध के साथ।
2. **वरिष्ठ तकनीकी निदेशक,** एनआईसी, परिवहन भवन, नई दिल्ली की ओर सार्वजनिक टिप्पणियों के लिए सड़क परिवहन की वेबसाइट पर अपलोड करने के अनुरोध के साथ।
3. **परियोजना निदेशक**, पकाई-ग्वालियर (म.प्र.) की ओर सूचनार्थ प्रेषित।
4. **पावरग्रिड घिरोर ट्रांसमिशन लिमिटेड, एन आर-III-** मैनपुरी (उ.प्र.), की ओर सूचनार्थ प्रेषित।

CHECK- LIST

Annexure-03

Guidelines for processing the proposal for laying of Utility line in the land along National Highways vested with **NHAI/PWD/BRO.**

General Information

Name and Address of the Applicant/Agency	:	Sr.GM (I/c-PGTL). 2A/216, Awash Vikas Colony, Shikohabad, Firozabad (Uttar Pradesh 283135).
1. National Highway No.	:	NH-44
2. State	:	Uttar Pradesh
3. Location	:	Vill- SAIYAN
4. Chain-age in km	:	129+694 KM.
5. Length in m	:	236.43 M
6. Width of available ROW in both side	:	67 M
7. Side of NH (left or right side of NH towards increasing chainage/Km direction)	:	Across the National Highway
8. Name of Highway Authority of	:	NHAI PIU, Agra
9. NHAI/PWD/BRO	:	NHAI
10. Highway Administration address	:	PROJECT DIRECTOR NHAI Division A208,PHOOL VATIKA, AGRA,KAMAL NAGAR AGRA -282004 (Uttar Pradesh)

प्रबंधक (तक.) Manager (Tech.) (PIU)-भा.रा.रा.प्रा. (NHAI) ग्वालियर (म.प्र.)

परियोजना निदेशक PROJECT DIRECTOR (PIU)-भा.रा.रा.प्रा. (NHAI) ग्वालियर (म.प्र.)

S.No	Item	Measurement. Observations as per site conditions	MORTH Norms	Whether complying with MORTH Norms
1	Details of already laid utility service, if any	NO		Yes
2	Whether up gradation of the stretch in near future is proposed or not	NO		Yes
	(a) If yes, provision of utility adversely affect the plan of up-gradation	Not affect plan of up-gradation		Yes
3	**Laying of the utility service along the National Highways.**	NA It is across the N.H		Yes
3.1.	Location of proposed utility service along the stretch	NA		Yes
3.2	Depth of top of utility service from ground level	NA		Yes
3.3	Mechanism for crossing water channel	NA		Yes
3.4	Whether ROW is restricted in this stretch?	NA		Yes
3.4.1	If yes, whether provision of land acquisition is required to lay utility	NA		Yes
	(a) If yes, whether undertaking for land acquisition along with relevant L.A. details has been furnished	NA		Yes
3.4.2	Width of concrete duct, if utility services are proposed to be laid in concrete ducts	NA		Yes
4	**Laying of utility services across the NH**	YES, Overhead crossing		Yes
4.1	Whether Existing drainage structures is allowed to carry the utility lines.	NA		Yes
4.2	Proposed crossing of utility service	Overhead power line, perpendicular to NH		Yes
4.3	Type of casing pipe/conduit carrying the utility line.	Overhead AL-59 ZEBRA Conductor Crossing		Yes
4.4	Whether ends of the casing/conduit pipe are sealed from the outside	NA		Yes

प्रबंधक (तक.)
Manager (Tech.)
प.का.कृ. (PIU)-भा.रा.रा.प्रा. (NHAI)
ग्वालियर (म.प्र.)

परियोजना निदेशक
PROJECT DIRECTOR
प.का.कृ. (PIU)-भा.रा.रा.प्रा. (NHAI)
ग्वालियर (म.प्र.)

SITE ENGINEER
NHAI, PIU,
GWALIOR (M.P.)

4.5	Length of casing/Transmission line crossing NH.	Crossing span length-236.43m, line length over N.H. Boundary-60 m. Row Of Transmission Line-67m.		Yes
4.6	Depth of top of the casing/conduit pipe.	NA		
4.7	Crossing method in case of CC pavement.	NA		
4.8	Horizontal and vertical clearances in case utilities are allowed overhead,	23.88 M Vertical clearance Horizontal 93.88 m. & 119.94m. from outer edge of N.H		Yes
5	**Document / Drawings enclosed with the proposal**	Yes		Yes
5.1	Cross-Section showing the size of trench for open trenching method	NA		
	(a)Trench width	-		
	(b) Filling of trench	-		
	(c) location of trench	-		
5.2	Cross section showing the size of pit and location of conduit for HDD method	NA		
5.3	Strip plan/ Route plan showing utility line, chainage, width of ROW, distance of proposed utility from the edge of ROW, important mile stone, intersections, cross drainage works etc.	Profile Enclosed		Yes
5.4	Plan and profile drawing of stretch showing cross section of road at 20m distance along with ROW and proposed utility	Profile Enclosed		Yes
6	Methodology for laying of utility line	Enclosed	Enclosed	Yes
7	Draft License Agreement is as per Ministry guidelines vide letter No. RW/NH-34044/29/2015/S&R (R) dated 22.11.2016 and signed by two witnesses	Enclosed	Enclosed	Yes

प्रबंधक (तक.)
Manager (Tech.)
प.का.कं. (PIU)-भा.रा.रा.रा.प्रा. (NHAI)
ग्वालियर (म.प्र.)

SITE ENGINEER
NHAI, PIU,
GWALIOR

परियोजना निदेशक
PROJECT DIRECTOR
प.का.कं. (PIU)-भा.रा.रा.रा.प्रा. (NHAI)
ग्वालियर (म.प्र.)

8	License fees in Favor of MoRTH	YES	As per Ministry vide circular no. RE/NH-33044/29/2015/S&(R)dated 22.11.2016	Yes
9	Whether Bank Guarantee has been obtained	YES	As per Ministry vide circular no. RE/NH-33044/29/2015/S&(R)dated 22.11.2016	
	(a) If yes, whether Confirmation of BG has been obtained as per MoRTH/NHAI guidelines	-		
10	**Affidavit / Undertaking from the Applicant for**			
10.1	Undertaking for not to damage other existing utility, if damaged then to pay the losses to either to MoRTH/NHAI or to the concerned agency.	Enclosed	Enclosed	
10.2	Undertaking for renewal of Bank Guarantees and when asked by NHAI/ MoRTH	Enclosed	Enclosed	
10.3	Undertaking for confirming all standard condition of MoRTH/NHAI guidelines.	Enclosed	Enclosed	
10.4	Undertaking for shifting of utility as and when asked by MoRTH/ NHAI within a month at their own cost.	Enclosed	Enclosed	
10.5	Undertaking for indemnity against all damages and claims.	Enclosed	Enclosed	
10.6	Undertaking for management of traffic movement during laying of utility line without hampering the traffic.	Enclosed	Enclosed	
10.7	Undertaking that If any claim is raised by the Concessionaire/contractor then the same has to be paid by the applicant	Enclosed	Enclosed	
10.8	Undertaking that the applicant has obtained various safety clearances from the representative authorities such as directorate of Electricity, Chief controller of Explosives, Petroleum and Explosive Safety Organization, Oil Industry Safety Directorate, State/Central Pollution Control Board and any other statutory clearance s applicable, before applying to Highway Administration	Enclosed	Enclosed	

The Right of the Way(ROW) of the National Highway available at the proposed location from the center line of divided carriageway is (15) m (from center of ROW to edge of ROW towards proposed utility)

The above particulars along with the drawings and documents have been verified and certified as correct as per prevailing site conditions.

[Name Designation and signature of the authorized representative of applicant]

कुँवर क्षेमेन्द्र कुमार
मुख्य प्रबंधक (ट्रांसमिशन लाइन निर्माण)
पावरग्रिड घिरोर ट्रांसमिशन लिमिटेड
घिरोर, मैनपुरी (उ०प्र०)

[Name Designation and signature of concerned field authority of NHAI/PWD/BRO]

परियोजना निदेशक
PROJECT DIRECTOR
प.का.ई. (PIU)-रा.रा.रा.प्रा. (NHAI)
ग्वालियर (म.प्र.)

प्रबंधक (तक.)
Manager (Tech.)
प.का.ई. (PIU)-रा.रा.रा.प्रा. (NHAI)
ग्वालियर (म.प्र.)

SITE ENGINEER
NHAI, PIU,
GWALIOR (M.P.)

CLIENT NAME: POWER GRID CORPORATION OF INDIA LIMITED

EXEC. AGENCY: BAJEL PROJECTS LIMITED

765kV DC DAUSA TOGHIROR TRANSMISSION LINE Part III

CHECK SURVEY REPORT AP 134 TO AP 137 — **LENGTH = 0.907**

AS PER DETAILED SURVEY								AS PER CHECK SURVEY																
SL NO	LOC. NO	WZ	TYPE OF TOWER	RC (m)	ANGLE OF DEVIATION	SPAN LENGTH (m)	SECTION LENGTH (m)	SL NO	LOC. NO	WZ	TYPE OF TOWER	RC (m)	ANGLE OF DEVIATION	SPAN LENGTH (m)	SECTION LENGTH (m)	CUMM. LENGTH (m)	SUM OF ADJ. SPAN (m)	WIND SPAN (m)	CPS COORDINATE UTM E	N	ELEV.	ZONE	CROSSINGS / REMARKS	VILLAGE NAME	TOWER HEIGHT (m)
8	AP 134	IV	DD60+3		0°47'06"LT			8	AP 134	IV	DD60+3		0°47'10"LT			2934	585.81	342.96	792020.71	2986247.54	163.9	43 R		BIRAI	73.72
						268.66	269							269	269								DOUBLE TRACK ELECTRIFIED RAIL WAY CROSSING , 33KV LINE		
9	AP 135	IV	DD60+0		28°24'31"RT			9	AP 135	IV	DD60+0		28°24'26"RT			3203	505.09	252.54	792286.16	2986288.96	163.84	43 R		SAIYAN	70.72
						236.42	236							236	236								NH 44 CROSSING ,2NOS 11KV LINE , CATR TRACK, SISAM TREE		
10	AP 136	IV	DB1+0		0°40'24"LT			10	AP 136	IV	DB1+0		0°40'12"LT			3439	638.39	319.09	792508.97	2986209.89	163.88	43 R		SAIYAN	70.72
						402	402							402	402								CART TRACK, SISAM TREE		
11	AP 137	IV	DB2+6		8°38'09"LT			11	AP 137	IV	DB2+6		8°38'21"LT			3841	801.56	400.73	792889.15	2986079.98	164.01	43 R		SAIYAN	76.72
TOTAL LENGTH IN KM 0.907								TOTAL LENGTH IN KM 0.907																

FOR BAJEL PROJECTS LTD.			FOR POWERGRID CORPORATION OF INDIA LTD.		
Bajel Projects Ltd. ARINDAM SEN Asst. Manager (Survey)	Abhishek Kaaran Manager (Project)	Bajel Projects Ltd. (Apurb Prakash) Project Manager	कुँवर क्षेमेन्द्र कुमार मुख्य प्रबंधक (ट्रांसमिशन लाइन निर्माण) पावरग्रिड घिरोर ट्रांसमिशन लिमिटेड	कुँवर क्षेमेन्द्र कुमार मुख्य प्रबंधक (ट्रांसमिशन लाइन निर्माण) पावरग्रिड घिरोर ट्रांसमिशन लिमिटेड	प्रेम प्रकाश राय / Prem Prakash Rai परियोजना प्रभारी / Project In Charge पावरग्रिड घिरोर ट्रांसमिशन लिमिटेड Powergrid Ghiror Transmission Limited
SURVEYED BY	CHECKED BY	SUBMITTED BY	CHECKED BY	RECOMMENDED BY	APPROVED BY

पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

संदर्भ/Ref : CC-ENGG-TB202314-1001973-T19731-842X64ZP 765KV WZ4 TSD

Date : 27/11/2024

From : Mani Shekhar
Senior DGM

To : M/S LARSEN And TOUBRO LIMITED
D, MANAPAKKAM, CHENNAI 600089
ECC DIVISION, MOUNT POONAMALLEE
Chennai-600089, Tamil Nadu

Cc : 0

Subject : 765kV D/C Bhadla-II PS-Sikar-II (2nd line)
LOA Ref : CC/T/W-TW/DOM/A02/23/01132/NOA-1/23-100339/01 Dated 20/03/2023

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No.	:	O22017-T-TL-0D-DC-0004
Orgn. Drg. No.	:	TB202314-1001973-T19731-842X64ZP 765KV WZ4 TSD
Revision No.	:	05
Drg. Title	:	Tower Spotting Data for 765kV D/C (Hexa AL59 Zebra)-WZ-4
App. Category	:	CAT-I
Release Date	:	27/11/2024

Scan to verify

Comments : OK

अनुमोदित श्रेणी/App. Category:

I. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु जारी।
Approved/released for fabrication/construction.

II. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु अनुमोदित/जारी बशर्ते दिए गए टिप्पणियाँ एवं आशोधनों की सम्मिलित किया जाये। कृपया रिवाइजड दस्तावेज अनुमोदनार्थ प्रस्तुत करें।
Approved/released for fabrication/ construction subject to incorporation of comments and modification as noted. Revised drawing required for approval.

III. टिप्पणियाँ सम्मिलित करने के उपरांत दस्तावेज को अनुमोदनार्थ प्रस्तुत करें।
To be resubmitted for approval after incorporating the comments.

IV. सूचनार्थ एवं रिकार्ड हेतु।
For information and record.

CATREL/ REL-CON निर्माण हेतु जारी।
Released for construction.

नोट/Note:

1. Approval/Comments conveyed herein neither relieve the contractor of his contractual obligations and his responsibilities, weights, quantities, design details assemble fits, performance particulars and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limits the purchaser's right under the contract.
2. The approval conveyed vide this letter does not cover the approval of make for sub-vendor items.

BAJEL PROJECTS LIMITED
THIS DOCUMENT/DRAWING IS ALSO TO BE USED FOR TL TRANSMISSION PACKAGE TL03 FOR DAUSA - GHIROR 765 KV D/C LINE - PART-III ASSOCIATED WITH "TRANSMISSION SYSTEM FOR EVACUATION OF POWER FROM RAJASTHAN REZ PH-IV (PART- 4: 3.5 GW): PART A" THROUGH TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE.
SPEC. NO.: CC/T/W-TW/DOM/A06/24/13269;
Ref. No.: CC/T/W-TW/DOM/A06/24/13269/ NOA-1/25-100948/01 DATED 23/01/2025

for

DATE	REV.	DESCRIPTION	DESIGNED	CHECKED	APPROVED
20.11.24	5	Revised as per Cilent's Comments recevied via Letter No. CC-ENGG-TB202314-1001973-T19731-842X64ZP 765KV WZ4 TSD Dated on 18.11.24	PAS	TRAMS	RJR
07.10.24	4	Revised to include the span details of DB2+12M,DC2+12M DD45+12 ,DD45+18/+25M and DD60/DE+12M extension	RV	TRAMS	RJR
05.02.24	3	Revised to include the span details of DD60/DE +30M/+35M & DB1+12M extension	RV	TRAMS	CSR
27.10.23	2	Revised as per Cilent's Comments recevied via Letter No CC-ENGG-TB202314-1001973-T19731-842X64ZP 765KV WZ4 TSD Dated on 26.10.23	RV	TRAMS	CSR
13.10.23	1	Revised to include the span details of DB1,DB2,DC2,DD60 tower Higher extensions	RV	TRAMS	CSR
28.03.23	0	First Submission for approval	CRV	TRAMS	CSR

REVISIONS

L&T CONSTRUCTION
POWER TRANSMISSION AND DISTRIBUTION IC

CLIENT : पावरग्रिड POWERGRID **BHADLA SIKAR TRANSMISSION LIMITED**
[A 100% WHOLLY OWNED SUBSIDIARY OF POWERGRID]

PROJECT : **765kV D/C Bhadla-II PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-E through tarrif based competitive bidding (TBCB route)**
TW01 -Part-I (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW01/G3/R
TW02 -Part-II (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW02/G3/R
TW03 -Part-III (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW03/G3/R

JOB No. O22017-T-TL

TOTAL NO. OF PAGES 19

	NAME	DATE
DSGN	CRV	28.03.23
CHKD	TRAMS	28.03.23
APPD	CSR	28.03.23

TITLE :

TOWER SPOTTING DATA FOR 765KV D/C (HEXA AL59 ZEBRA - WZ-4)

DOC. No. O 2 2 0 1 7 - T - T L - 0 D - D C - 0 0 0 4 | CODE: IS | REV.: 5

RELEASED FOR ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☑ APPROVAL ☐ CONSTRUCTION

L&T CONSTRUCTION
POWER TRANSMISSION AND DISTRIBUTION IC

PROJECT:	765kV D/C Bhadla-II PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-E through tarrif based competitive bidding (TBCB route)	DOC NO: O22017-T-TL-0D-DC-0004		DATE 20.11.24
TITLE:	INDEX	DESIGNED	CHECKED	SHEET
		PAS	TRAMS	

L&T CONSTRUCTION

POWER TRANSMISSION AND DISTRIBUTION IC

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TITLE :	TOWER SPOTTING DATA FOR 765KV D/C UPTO +9M (HEXA AL59 ZEBRA - WZ-4)	Prepared: PAS / Checked: TRAMS	SHEET

Sl No	DESCRIPTION		TOWER SPOTTING DATA FOR -3m, -1.5m, +0m,+1.5m,+3m,+4.5m,+6m,+7.5m &+9m BE NORMAL SPAN = 400 MTRS ALL SPANS ARE IN MTRS ALL LOADS ARE IN KGS				
			TOWER TYPES				
			DA- SUSPENSION (0° -2°)	DB1-TENSION (0° - 7°)	DB2-TENSION (7° - 15°)	DC1-TENSION (15° - 22°)	DC2-TENSION (22° - 30°)
1	WEIGHT SPAN LIMITATIONS :						
	a) MAXIMUM WEIGHT SPAN (M) :						
	GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	600	600	600	600	600
		BWC, EFFECT OF ONE SPAN	360	360	360	360	360
	CONDUCTOR	NC, EFFECT OF BOTH SPANS	600	600	600	600	600
		BWC, EFFECT OF ONE SPAN	360	360	360	360	360
	b) MINIMUM WEIGHT SPAN (M) :						
	GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	200	0	0	0	0
		BWC, EFFECT OF ONE SPAN	100	-200	-200	-200	-200
	CONDUCTOR	NC, EFFECT OF BOTH SPANS	200	0	0	0	0
		BWC, EFFECT OF ONE SPAN	100	-200	-200	-200	-200

Sl No	DESCRIPTION	TOWER TYPES									
		DA- SUSPENSION (0° -2°)		DB1-TENSION (0° - 7°)		DB2-TENSION (7° - 15°)		DC1-TENSION (15° - 22°)		DC2-TENSION (22° - 30°)	
2	PERMISSIBLE SUM OF ADJACENT SPANS FOR VARIOUS DEVIATION ANGLES (SUBJECT TO AVAILABILITY OF MINIMUM SPECIFIED GROUND CLEARANCES AND WEIGHT SPAN LIMITATION AT SL.NO 1). PERMISSIBLE ONE SPAN FOR VARIOUS DEVIATION ANGLES FOR TOWERS SHOULD NOT EXCEED 60% OF THE VALUE SHOWN FOR SUM OF ADJACENT SPANS. *THE MENTIONED SPAN VALUES ARE APPLICABLE TO CONDUCTOR, EARTHWIRE AND OPGW.* CONDUCTOR/EARTHWIRE/OPGW HAS BEEN CONSIDERED WHICHEVER GIVES LESSER OF THE SUM OF THE ADJACENT SPANS.	2	800	7	800	15	800	22	800	30	800
		1	821	6	845	14	845	21	844	29	844
		0	841	5	890	13	890	20	889	28	887
				4	935	12	934	19	933	27	931
				3	980	11	979	18	978	26	975
				2	1025	10	1024	17	1022	25	1019
				1	1070	9	1069	16	1067	24	1063
						8	1114	15	1112	23	1107
				0	1115	7 & BELOW	1159	14 & BELOW	1156	22	1152
										21 & BELOW	1196

L&T CONSTRUCTION

POWER TRANSMISSION AND DISTRIBUTION IC

PROJECT :	765kV D/C Bhadla-II PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-E through tariff based competitive bidding (TBCB route)	DOC NO: 022017-T-TL-0D-DC-0004		20.11.24
TITLE :	TOWER SPOTTING DATA FOR 765KV D/C UPTO +9M (HEXA AL59 ZEBRA - WZ-4)	Prepared	Checked	SHEET
		PAS	TRAMS	

SI No	DESCRIPTION		TOWER TYPES			
			DD45 - TENSION (30° - 45°)	DD60 - TENSION (45° - 60°)	DD60-COMPLETE DEAD END 0° DEVIATION - (ONE SIDE)	DD60-DEAD END [0° TO 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE]
3	WEIGHT SPAN LIMITATIONS :					
	a) MAXIMUM WEIGHT SPAN (M) :					
	GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	600	600	300	450
		BWC, EFFECT OF ONE SPAN	360	360	60	330
	CONDUCTOR	NC, EFFECT OF BOTH SPANS	600	600	300	450
		BWC, EFFECT OF ONE SPAN	360	360	60	330
	b) MINIMUM WEIGHT SPAN (M) :					
	GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	0	0	0	0
		BWC, EFFECT OF ONE SPAN	-300	-300	0	-300
	CONDUCTOR	NC, EFFECT OF BOTH SPANS	0	0	0	0
		BWC, EFFECT OF ONE SPAN	-300	-300	0	-300

SI No	DESCRIPTION	TOWER TYPES			
		DD45 - TENSION (30°- 45°)		DD60-TENSION (45° - 60°)	
4	PERMISSIBLE SUM OF ADJACENT SPANS FOR VARIOUS DEVIATION ANGLES (SUBJECT TO AVAILABILITY OF MINIMUM SPECIFIED GROUND CLEARANCES AND WEIGHT SPAN LIMITATION AT SL.NO 1). PERMISSIBLE ONE SPAN FOR VARIOUS DEVIATION ANGLES FOR TOWERS SHOULD NOT EXCEED 60% OF THE VALUE SHOWN FOR SUM OF ADJACENT SPANS. *THE MENTIONED SPAN VALUES ARE APPLICABLE TO CONDUCTOR, EARTHWIRE AND OPGW.* CONDUCTOR/EARTHWIRE/OPGW HAS BEEN CONSIDERED WHICHEVER GIVES LESSER OF THE SUM OF THE ADJACENT SPANS.	45	800	60	800
		44	842	59	839
		43	884	58	879
		42	926	57	918
		41	968	56	958
		40	1010	55	998
		39	1053	54	1038
		38	1095	53	1078
		37	1138	52	1119
		36 & BELOW	1181	51	1159
				50& BELOW	1200

L&T CONSTRUCTION

POWER TRANSMISSION AND DISTRIBUTION IC

PROJECT :	765kV D/C Bhadla-II PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-E through tarrif based competitive bidding (TBCB route)	DOC NO: 022017-T-TL-0D-DC-0004	20.11.24

TITLE :	TOWER SPOTTING DATA FOR 765KV D/C UPTO +9M (HEXA AL59 ZEBRA - WZ-4)	Prepared	Checked	SHEET
		PAS	TRAMS	

SI No	DESCRIPTION		TOWER TYPES							
			DA- SUSPENSION (0° -2°)	DB1-TENSION (0° - 7°)	DB2-TENSION (7° - 15°)	DC1-TENSION (15° - 22°)	DC2-TENSION (22° - 30°)	DD45-TENSION (30° - 45°)	DD60-TENSION (45° - 60°)	DD60 - DEAD END 1) COMPLETE DEAD END(ONE SIDE) 2) 0° - 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION(SLACK) SIDE
5	DESIGN WIRE TENSIONS (KG)									
	GROUND WIRE : GSW	32°C & FULL WIND/32°C & 75% WIND	4115.3/3390.8							
		32°C & NIL WIND	1247.7							
	OPGW	32°C & FULL WIND/32°C & 75% WIND	3793/3135.3							
		32°C & NIL WIND	983.0							
	CONDUCTOR :	32°C & FULL WIND/32°C & 75% WIND	BOTTOM CONDUCTOR - 7114.1 / 5829.8 MIDDLE CONDUCTOR - 7448.2 / 6097.4 TOP CONDUCTOR - 7701.4 / 6300.9							
		32°C & NIL WIND	2422.9							

SI No	DESCRIPTION		TOWER TYPES					
			DA	DB1/DB2	DC1/DC2	DD45/DD60	DD60 - COMPLETE DEAD END (0°DEVIATION) - ONE SIDE	DD60-DEAD END [0° TO 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE]
6	DESIGN WIND SPAN (M)	NORMAL CONDITION (INTACT WIRE)	400	400	400	400	200	300
		BROKEN WIRE	240	240	240	240	40	220

GENERAL NOTES :

1. All spans are in meter.
2. Maximum conductor temperature is 85°C for AL59 Zebra.
3. Maximum sum of adjacent spans for various angle of deviations are permitted subject to the condition that minimum live metal clearance and minimum ground clearance are available.
4. The clearances from buildings, trees, powerline crossings should be made in confirming with the CEA's Regulation 2023 (Meaures Relating to Safety & Electric Supply).
5. DD45 tower is not designed for dead end condition and shall not be used for 400kV and above voltage level power line crossings and Railway crossings. DD60 tower has been designed for dead end condition which shall be used for such crossings.

6.ROAD CROSSING

(i) At all road crossings, except National Highways the towers shall be fitted with normal suspension and tension insulator strings depending on the type of tower, However for all National Highway crossings tension type towers with tension insulator strings shall be used.

(ii)Ground clearance at the roads under maximum temperature and in still air shall be such that even with conductor broken in adjacent span,ground clearance of the conductor from the road surfaces will not be less than the specified minimum ground clearances.

(iii)At all national and state highways,Tension tower type with tension insulator strings shall be used and crossing span will not be more than 250 meters, unless higher span is permitted by national highways authority in case of highways having more lanes.

(iv) Minimum ground clearance for national highway crossing shall be 18.8m.

7.MINIMUM CLEARANCE FOR POWER LINE CROSSING

KV	66KV	132KV	220KV	400KV	765KV	500KV HVDC	800KV HVDC	1200KV
CLEARANCE(m)	7.94	7.94	7.94	7.94	7.94	7.94	9.04	10.44

(i) For Power line crossing of 400kV or above voltage level, large angle & dead end towers (i.e DD60) shall be used on either side of power line crossing (i.e DD-DD arrangement).

(ii) The crossing of 220kV and 132kV lines shall be done using angle towers, depending upon the merit of the prevailing site condition and line deviation requirement.

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(iii) Crossing of 66kV lines & below shall be done using suspension/tension towers, depending upon the merit of the prevailing site condition and line deviation requirement.

(iv)In case of crossing with angle towers proper guying shall be provided to facilitate stringing of the power line crossing sections separately on obtaining line shutdowns.

(v) Minimum Ground Clearance from Power Conductor is 18m.

8. Electrical clearance for Rail way crossings

(i) Prior approval of Railway Authority is to be obtained.

(ii) Minimum clearance between lowest point of 765kV line conductor **& above rail level shall be as per the following**

a) Vertical clearance for OHE other than high rise OHE - **21.86m** (Above 500kV and upto 800kV).

b) Vertical clearance for OHE high rise OHE* - **23.86m** (Above 500kV and upto 800kV).

* - Applicable only for electrification of routes where double stack container having maximum height of 6609mm is plying

(iii) For Electrified railways or railway proposed to be electrified, the clearance between the highest traction conductor and the crossing 765kV conductor shall not be **less than 7.94m** under maximum sag condition (Above 500kV and upto 800kV).

(iv) The crossing span shall be limited to **300m or 80%** of normal span for which the structure is designed, whichever is less.

(v) The crossing shall normally be at right angle to the railway track.

(vi) Crossing should be done with **DD60** type tower on either side. However, approval of railway crossing from railway authority has to obtained in each case.

(vii) The minimum horizontal distance measured at right angles from the centre of nearest track to any part of the structure (all structures shall be rigid & well founded) carrying electrical conductors crossing a railways shall be equal to the height of the structure in meters above normal ground level plus 6 meters.

(viii) No Crossing shall be located over a booster transformer, traction switching station, traction sub station, overlap section or a track cabin location in an electrified area.

(ix) Notwithstanding the above, Minimum clerance for crossings as per Indian Railways Schedule of Dimensions (BG) Revised 2004 as amended from time to time.

9.RIVER CROSSING

(i) In case of major river crossing,river crossing towers shall be of suspension type along with anchor towers of DD60 type tower on either side of the main river

(ii)For navigable rivers, clearance required by navigation authority shall be provided. For non-navigable river, clearance shall be reckoned with respect to highest flood level (HFL).Minimum Ground Clearance from Power Conductor is 18m.

(iii)For river crossing anchoring with longer wind span : 0 deg. deviation on crossing span side and 0deg to 30deg. deviation on other side.

10. TELECOMMUNICATION LINE CROSSING

(i) The angle of crossing shall be as near to 90 deg as possible. However deviation of the extent of 30deg may be permitted under exceptionally difficult situation.

(ii) For a crossing angle below 60deg. matter shall be referred the matter will be referred to the authority in charge of the telecommunication system. On a request from the contractor the permission of the telecommunication authority may be obtained by the Owner.

(iii)In the crossing span,power line support will be as near the telecommunication line as possible,to obtain increased vertical clearance between the wires.

11 OIL PIPE LINE CROSSING

(i) Wherever transmission line crosses an oil/gas pipeline, the angle of crossing shall be as near to 90 degree possible .

(ii) Minimum separation of 25m should be maintained between pipe line and transmission line footings & pipe /counterpoise earthing.

(iii) Wherever overhead line of voltage 33 kV or above or high voltage direct current intending to cross the right of way of a Petroleum or Natural Gas pipeline, the angle of crossing of crossing of the overhead line with respect to the pipelines shall preferably be at right angles and, in any case, the crossing angle shall not be less than seventy five degrees.

12. The number of consecutive spans between the section points shall not exceed 15 spans or 5KM in plain terrain and 10 spans or 3KM in hilly terrain. A section point shall comprise of tension point with DB and DC Type tower as applicable.

13. Tower type DC2 shall be used for transposition tower with modification of cross arm.

14. Way leave clearance 33.5m either side from the CL of the tower.

15. Vertical Loads of Individual Spans are acting downwards for suspension towers.

16. Tower Spotting shall be done by PLS-CADD using automatic sagging method.

17. Minimum ground clearance required 18000mm.

18. Maximum deviation of line for Dead End tower shall be 15 deg both side i.e line side & sub station side (slack span side)

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TITLE :	TOWER SPOTTING DATA FOR 765KV D/C FOR DB2+15M, DB1/DB2+18/+25M, DC2+15M, DC2+18/+25M & DD60/DE+18/25M (HEXA AL59 ZEBRA - WZ-4)	Prepared: PAS	Checked: TRAMS

		TOWER SPOTTING REQUIREMENTS		Normal span = 325m(for DB2+15m/DC2+15m) , Normal span = 300m (for DB1/DB2+18/+25m, DC2+18/+25M & DD60+18m/+25m)					
				ALL SPANS ARE IN MTRS ALL LOADS ARE IN KGS					
SI No		DESCRIPTION		TOWER TYPES					
				DB1 (0° - 7°) +18/+25M BE-TENSION	DB2(0° - 13°) +15M BE-TENSION	DB2(0° - 13°) +18M/ +25M BE-TENSION	DC2 (15°- 28°) +15M BE - TENSION	DC2 (15°- 28°) +18/+25M BE - TENSION	DD60 (30°- 55°) +18/+25M BE-TENSION
1	1	WEIGHT SPAN LIMITATIONS :							
		a) MAXIMUM WEIGHT SPAN (M) :							
		GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	600	600	600	600	600	600
			BWC, EFFECT OF ONE SPAN	360	360	360	360	360	360
		CONDUCTOR	NC, EFFECT OF BOTH SPANS	600	600	600	600	600	600
			BWC, EFFECT OF ONE SPAN	360	360	360	360	360	360
		b) MINIMUM WEIGHT SPAN (M) :							
		GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	0	0	0	0	0	0
			BWC, EFFECT OF ONE SPAN	-200	-200	-200	-200	-200	-300
		CONDUCTOR	NC, EFFECT OF BOTH SPANS	0	0	0	0	0	0
			BWC, EFFECT OF ONE SPAN	-200	-200	-200	-200	-200	-300

			TOWER TYPES											
	2	DESCRIPTION	DB1 (0° - 7°) +18/+25M BE-TENSION		DB2(0° - 13°) +15M BE-TENSION		DB2(0° - 13°) +18M/ +25M BE-TENSION		DC2 (15°- 28°) +15M BE - TENSION		DC2 (15°- 28°) +18/+25M BE - TENSION		DD60 (30°- 55°) +18/+25M BE-TENSION	
2		PERMISSIBLE SUM OF ADJACENT SPANS FOR VARIOUS DEVIATION ANGLES (SUBJECT TO AVAILABILITY OF MINIMUM SPECIFIED GROUND CLEARANCES AND WEIGHT SPAN LIMITATION AT SL.NO 1). PERMISSIBLE ONE SPAN FOR VARIOUS DEVIATION ANGLES FOR TOWERS SHOULD NOT EXCEED 60% OF THE VALUE SHOWN FOR SUM OF ADJACENT SPANS.	7	600	13	650	13	600	28	650	28	600	55	600
			6	642	12	692	12	642	27	692	27	641	54	635
			5	683	11	735	11	683	26	733	26	681	53	675
			4	725	10	778	10	725	25	775	25	722	52	712
			3	767	9	820	9	766	24	817	24	763	51	750
			2	809	8	863	8	808	23	859	23	804	50	787
			1	851	7	905	7	850	22	901	22	845	49	825
									21	944	21	886	48	864
													47	902
							15	492	30	548	30	501	46	940
							14	546	29	599	29	551	45	979
													60	377
													59	421
													58	466
													57	511
													56	556

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TITLE :	TOWER SPOTTING DATA FOR 765KV D/C FOR DB2+15M, DB1/DB2+18/+25M, DC2+15M, DC2+18/+25M & DD60/DE+18/25M (HEXA AL59 ZEBRA - WZ-4)	Prepared PAS	Checked TRAMS

Sl No		DESCRIPTION		TOWER TYPES DD60+18/+25M - COMPLETE DEAD END (0°DEVIATION) - ONE SIDE	TOWER TYPES DD60+18/+25M-DEAD END WITH 0° TO 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE
1		WEIGHT SPAN LIMITATIONS :			
		a) MAXIMUM WEIGHT SPAN (M) :			
		GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	300	450
			BWC, EFFECT OF ONE SPAN	60	330
		CONDUCTOR	NC, EFFECT OF BOTH SPANS	300	450
			BWC, EFFECT OF ONE SPAN	60	330
		b) MINIMUM WEIGHT SPAN (M) :			
		GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	0	0
			BWC, EFFECT OF ONE SPAN	300	-300
		CONDUCTOR	NC, EFFECT OF BOTH SPANS	0	0
			BWC, EFFECT OF ONE SPAN	-300	-300

Sl No	3	DESCRIPTION		TOWER TYPES DB1(0° - 7°) / DB2 (0° - 13°) +18/+25M -BE	DB2+15M BE (0° - 14°)	DC2 (15° - 28°) +15M BE - TENSION	DC2 (15° - 28°) +18/+25M BE - TENSION	DD60 (30° - 55°) +18/+25M BE-TENSION	DD60+18/+25M - COMPLETE DEAD END (0°DEVIATION) - ONE SIDE	DD60+18/+25M-DEAD END WITH 0° TO 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE
3		DESIGN WIND SPAN (M)	NORMAL CONDITION (INTACT WIRE)	300	325	325	300	300	150	225
			BROKEN WIRE	180	195	195	180	180	30	165

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TITLE :	TOWER SPOTTING DATA FOR 765KV D/C FOR DB2+15M, DB1/DB2+18/+25M, DC2+15M, DC2+18/+25M & DD60/DE+18/25M (HEXA AL59 ZEBRA - WZ-4)	Prepared PAS	Checked TRAMS

Sl No	4	DESCRIPTION		TOWER TYPES					
				DB1(0° - 7°) / DB2 (0° - 13°) +18/+25M -BE	DB2+15M BE (0° - 13°)	DC2 (15° - 28°) +15M BE - TENSION	DC2 (15° - 28°) +18/+25M BE - TENSION	DD60 (30° - 55°) +18/+25M BE-TENSION	DD60+18/25M - DEAD END 1) COMPLETE DEAD END(ONE SIDE) 2) 0° - 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION(SLACK) SIDE
4		DESIGN WIRE TENSION (KG)							
		GROUND WIRE : GSW	32°C & FULL WIND/32°C & 75% WIND	4115.3/3390.8					
			32°C & NIL WIND	1247.7					
		OPGW	32°C & FULL WIND/32°C & 75% WIND	3778.3/3120.7					
			32°C & NIL WIND	963.0					
		CONDUCTOR :	32°C & FULL WIND/32°C & 75% WIND	BOTTOM CONDUCTOR - 7114.1 / 5829.8 MIDDLE CONDUCTOR - 7448.2 / 6097.4 TOP CONDUCTOR - 7701.4 / 6300.9					
			32°C & NIL WIND	2422.9					

Sl No	5	DESCRIPTION		TOWER TYPES					
				DB1(0° - 7°) / DB2 (0° - 13°) +18/+25M -BE	DB2+15M BE (0° - 13°)	DC2 (15° - 28°) +15M BE - TENSION	DC2 (15° - 28°) +18/+25M BE - TENSION	DD60 (30° - 55°) +18/+25M BE-TENSION	DD60+18/25M - DEAD END 1) COMPLETE DEAD END(ONE SIDE) 2) 0° - 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION(SLACK) SIDE
5		DESIGN WIND PRESSURE (KG/M2)							
		GROUND WIRE : GSW	32°C & FULL WIND/32°C & 75% WIND	284/213	276/207	276/207	284/213	284/213	284/213
		OPGW	32°C & FULL WIND/32°C & 75% WIND	284/213	276/207	276/207	284/213	284/213	284/213
		CONDUCTOR :	32°C & FULL WIND/32°C & 75% WIND	TC-232/174 MC-225/168.75 BC-216/162	TC-226/169.5 MC-219/164.25 BC-206/154.5	TC-226/169.5 MC-219/164.25 BC-206/154.5	TC-232/174 MC-225/168.75 BC-216/162	TC-232/174 MC-225/168.75 BC-216/162	TC-232/174 MC-225/168.75 BC-216/162

L&T CONSTRUCTION

POWER TRANSMISSION AND DISTRIBUTION IC

PROJECT :	765kV D/C Bhadla-II PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-E through tarrif based competitive bidding (TBCB route) TW01 -Part-I (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW01/G3/R TW02 -Part-II (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW02/G3/R TW03 -Part-III (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW03/G3/R	DOC NO: O22017-T-TL-0D-DC-0004	20.11.24
TITLE :	TOWER SPOTTING DATA FOR 765KV D/C (FOR DB1/+12M, DD60/DE+30/+35M) (HEXA AL59 ZEBRA - WZ-4)	Prepared PAS	Checked TRAMS

	TOWER SPOTTING REQUIREMENTS		Normal span = 325m(for DB1+12m) Normal span = 250m(for DD60+30m/+35m)			
			ALL SPANS ARE IN MTRS ALL LOADS ARE IN KGS			
Sl No	DESCRIPTION		TOWER TYPES			
			DB1 (0° - 7°) +12M BE-TENSION	DD60 (45°- 50°) +30/35M BE-TENSION	DD60+30/+35M - COMPLETE DEAD END (0°DEVIATION) - ONE SIDE	DD60+30/+35M- DEAD END WITH 0° TO 10° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE
1	WEIGHT SPAN LIMITATIONS :					
	a) MAXIMUM WEIGHT SPAN (M) :					
	GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	600	600	300	450
		BWC, EFFECT OF ONE SPAN	360	360	60	330
	CONDUCTOR	NC, EFFECT OF BOTH SPANS	600	600	300	450
		BWC, EFFECT OF ONE SPAN	360	360	60	330
	b) MINIMUM WEIGHT SPAN (M) :					
	GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	0	0	0	0
		BWC, EFFECT OF ONE SPAN	-200	-300	-300	-300
	CONDUCTOR	NC, EFFECT OF BOTH SPANS	0	0	0	0
		BWC, EFFECT OF ONE SPAN	-200	-300	-300	-300

	DESCRIPTION	TOWER TYPES			
		DB1 (0° - 7°) +12M BE-TENSION		DD60 (45°- 50°) +30/35M BE-TENSION	
2	PERMISSIBLE SUM OF ADJACENT SPANS FOR VARIOUS DEVIATION ANGLES (SUBJECT TO AVAILABILITY OF MINIMUM SPECIFIED GROUND CLEARANCES AND WEIGHT SPAN LIMITATION AT SL.NO 1). PERMISSIBLE ONE SPAN FOR VARIOUS DEVIATION ANGLES FOR TOWERS SHOULD NOT EXCEED 60% OF THE VALUE SHOWN FOR SUM OF ADJACENT SPANS.	7	650	50	500
		6	689	49	533
		5	728	48	566
		4	767	47	599
		3	806	46	632
		2	845	45	666
		1	884		
		0	923		

L&T CONSTRUCTION
POWER TRANSMISSION AND DISTRIBUTION IC

PROJECT :	765kV D/C Bhadla-II PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-E through tarrif based competitive bidding (TBCB route) TW01 -Part-I (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW01/G3/R TW02 -Part-II (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW02/G3/R TW03 -Part-III (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW03/G3/R	DOC NO: O22017-T-TL-0D-DC-0004	20.11.24
TITLE :	TOWER SPOTTING DATA FOR 765KV D/C (FOR DB1/+12M, DD60/DE+30/+35M) (HEXA AL59 ZEBRA - WZ-4)	Prepared: PAS	Checked: TRAMS

Sl No	DESCRIPTION		TOWER TYPES			
			DB1 (0° - 7°) +12M BE-TENSION	DD60 (45°- 50°) +30/35M BE-TENSION	DD60+30/+35M - COMPLETE DEAD END (0°DEVIATION) - ONE SIDE	DD60+30/+35M- DEAD END WITH 0° TO 10° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE
3	DESIGN WIND SPAN (M)	NORMAL CONDITION (INTACT WIRE)	325	250	125	187.5
		BROKEN WIRE	195	150	25	137.5

Sl No	DESCRIPTION		TOWER TYPES			
			DB1 (0° - 7°) +12M BE-TENSION	DD60 (45°- 50°) +30/35M BE-TENSION	DD60+30/+35M - COMPLETE DEAD END (0°DEVIATION) - ONE SIDE	DD60+30/+35M- DEAD END WITH 0° TO 10° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE
4	DESIGN WIRE TENSIONS (KG)					
	GROUND WIRE : GSW	32°C & FULL WIND/32°C & 75% WIND	4115.3/3390.8			
		32°C & NIL WIND	1247.7			
	OPGW	32°C & FULL WIND/32°C & 75% WIND	3778.3/3120.7			
		32°C & NIL WIND	983.0			
	CONDUCTOR :	32°C & FULL WIND/32°C & 75% WIND	BOTTOM CONDUCTOR - 7114.1 / 5829.8 // MIDDLE CONDUCTOR - 7448.2 / 6097.4 // TOP CONDUCTOR - 7701.4 / 6300.9			
		32°C & NIL WIND	2422.9			

Sl No	DESCRIPTION		TOWER TYPES		
			DB1 (0° - 7°) +12M BE-TENSION	DD60 (45°- 50°) +30/35M BE-TENSION	DD60+30/35M - DEAD END 1) COMPLETE DEAD END(ONE SIDE) 2) 0° - 10° DEVIATION ON BOTH LINE SIDE AND SUB-STATION(SLACK) SIDE
5	DESIGN WIND PRESSURE (KG/M2)				
	GROUND WIRE : GSW	32°C & FULL WIND/32°C & 75% WIND	277/208	299/225.25	299/225.25
	OPGW	32°C & FULL WIND/32°C & 75% WIND	277/208	299/225.25	299/225.25
	CONDUCTOR :	32°C & FULL WIND/32°C & 75% WIND	TC-226/170 MC-218/163.5 BC-205/153.75	TC-244/183 MC-236/177 BC-228/171	TC-244/183 MC-236/177 BC-228/171

NOTE : For the dead condition +30/+35m Extn of DD60/DE tower the maximum angle of deviation is considered as 10 deg on line side as well as slack side

L&T CONSTRUCTION
POWER TRANSMISSION AND DISTRIBUTION IC

PROJECT :	765kV D/C Bhadla-II PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-E through tarrif based competitive bidding (TBCB route) TW01 -Part-I (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW01/G3/R TW02 -Part-II (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW02/G3/R TW03 -Part-III (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW03/G3/R	DOC NO: O22017-T-TL-0D-DC-0004	20.11.24
TITLE :	TOWER SPOTTING DATA FOR 765KV D/C (FOR DB2+12M, DC2+12M,DD45+12M,DD45+18/+25 AND DD60/DE+12M) (HEXA AL59 ZEBRA - WZ-4)	Prepared: PAS	Checked: TRAMS

	TOWER SPOTTING REQUIREMENTS		Normal span = 325m (for DB2+12m,DC2+12m,DD45+12m and DD60/DE+12m BE) Normal span = 300m (for DD45+18/+25) ALL SPANS ARE IN MTRS ALL LOADS ARE IN KGS						
			TOWER TYPES						
Sl No	DESCRIPTION		DB2 (0° - 13°) +12M BE-TENSION	DC2 (15° - 28°) +12M BE-TENSION	DD45 (30° - 43°) +12M BE-TENSION	DDD45 (30° - 43°) +18M/+25M BE-TENSION	DD60 (30° - 55°) +12M BE-TENSION	DD60+12M BE - COMPLETE DEAD END(0°DEVIATION) - ONE SIDE	DD60+12M-DEAD END WITH 0° TO 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE
1	WEIGHT SPAN LIMITATIONS :								
	a) MAXIMUM WEIGHT SPAN (M) :								
	GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	600	600	600	600	600	300	450
		BWC, EFFECT OF ONE SPAN	360	360	360	360	360	60	330
	CONDUCTOR	NC, EFFECT OF BOTH SPANS	800	800	800	800	800	300	450
		BWC, EFFECT OF ONE SPAN	360	360	360	360	360	60	330
	b) MINIMUM WEIGHT SPAN (M) :								
	GROUND WIRE/OPGW	NC, EFFECT OF BOTH SPANS	0	0	0	0	0	0	0
		BWC, EFFECT OF ONE SPAN	-200	-300	-300	-300	-300	-300	-300
	CONDUCTOR	NC, EFFECT OF BOTH SPANS	0	0	0	0	0	0	0
		BWC, EFFECT OF ONE SPAN	-200	-300	-300	-300	-300	-300	-300

Sl No	DESCRIPTION	TOWER TYPES									
		DB2 (0° - 13°) +12M BE-TENSION		DC2 (15° - 28°) +12M BE-TENSION		DD45 (30° - 43°) +12M BE-TENSION		DDD45 (30° - 43°) +18M/+25M BE-TENSION		DD60 (30° - 55°) +12M BE-TENSION	
2	PERMISSIBLE SUM OF ADJACENT SPANS FOR VARIOUS DEVIATION ANGLES (SUBJECT TO AVAILABILITY OF MINIMUM SPECIFIED GROUND CLEARANCES AND WEIGHT SPAN LIMITATION AT SL.NO 1). PERMISSIBLE ONE SPAN FOR VARIOUS DEVIATION ANGLES FOR TOWERS SHOULD NOT EXCEED 60% OF THE VALUE SHOWN FOR SUM OF ADJACENT SPANS.	13	650	28	650	43	650	43	600	55	650
		12	693	27	692	42	690	42	639	54	688
		11	735	26	733	41	730	41	678	53	726
		10	778	25	775	40	770	40	717	52	765
		9	821	24	817	39	811	39	757	51	804
		8	864	23	859	38	851	38	796	50	842
		7	907	22	901	37	892	37	836	49	881
						36	933	36	875	48	921
						35	974	35	915	47	960
						34	1015	34	955	46	999
						33	1056	33	995	45	1039
						32	1097	32	1035		
						31	1138	31	1075		
						30	1180	30	1116		
		15	540	30	549	45	554	45	506	60	421
		14	596	29	600	44	603	44	554	59	467
										58	513
										57	559
										56	605

L&T CONSTRUCTION

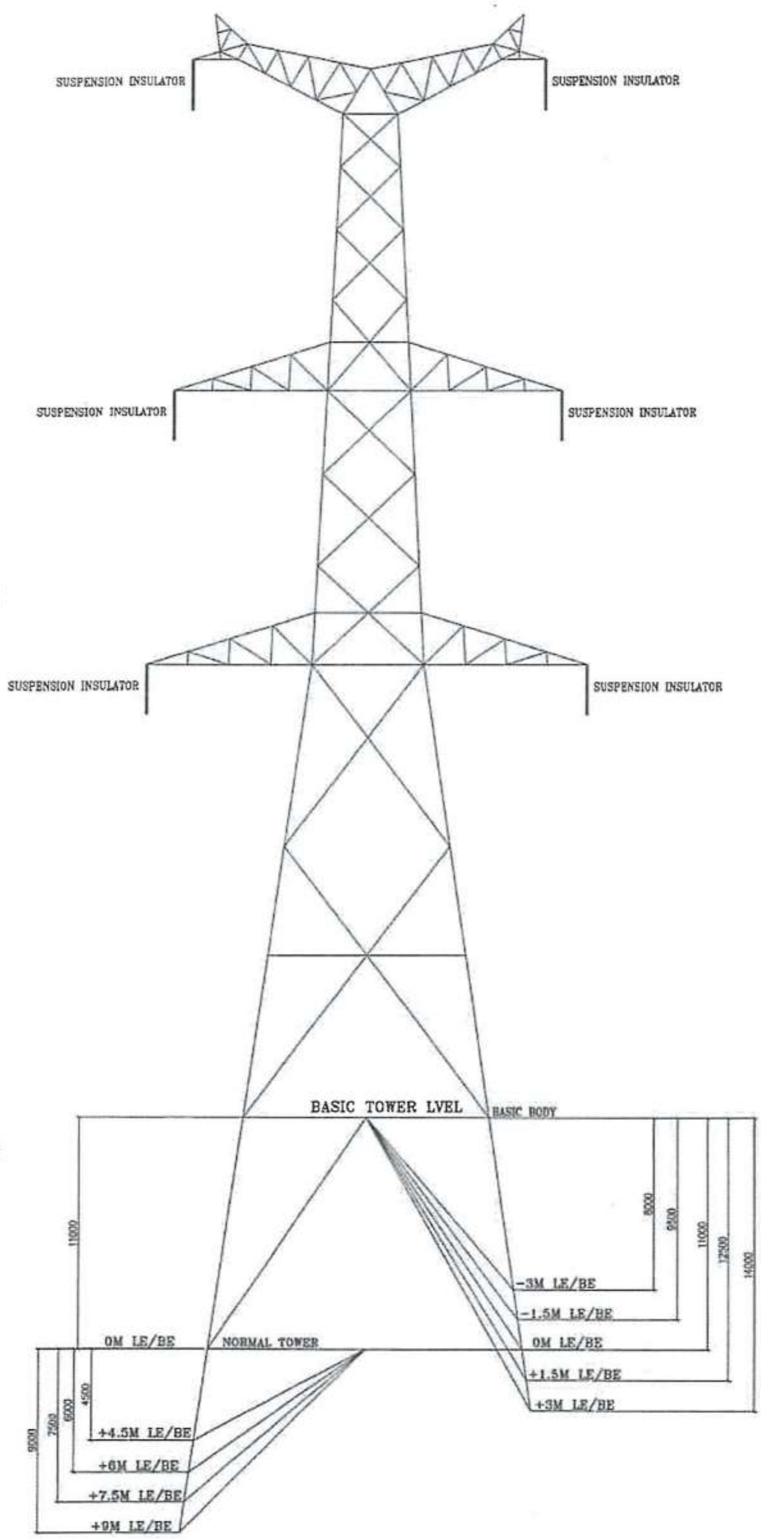
POWER TRANSMISSION AND DISTRIBUTION IC

PROJECT :	765kV D/C Bhadla-II PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-E through tarrif based competitive bidding (TBCB route) TW01 -Part-I (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW01/G3/R TW02 -Part-II (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW02/G3/R TW03 -Part-III (Specification No: TBCB/765kV/RAJ-PHASE-II-PART-E/TW03/G3/R	DOC NO: O22017-T-TL-0D-DC-0004	20.11.24
TITLE :	TOWER SPOTTING DATA FOR 765KV D/C (FOR DB2+12M, DC2+12M,DD45+12M,DD45+18/+25 AND DD60/DE+12M) (HEXA AL59 ZEBRA - WZ-4)	Prepared: PAS	Checked: TRAMS

Sl No	DESCRIPTION		TOWER TYPES						
			DB2 (0° - 13°) +12M BE-TENSION	DC2 (15° - 28°) +12M BE-TENSION	DD45 (30° - 43°) +12M BE-TENSION	DDD45 (30° - 43°) +18M/+25M BE-TENSION	DD60 (30° - 55°) +12M BE-TENSION	DD60+12M BE - COMPLETE DEAD END(0°DEVIATION) - ONE SIDE	DD60+12M-DEAD END WITH 0° TO 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE
3	DESIGN WIND SPAN (M)	NORMAL CONDITION (INTACT WIRE)	325	325	325	300	325	162.5	243.75
		BROKEN WIRE	195	195	195	180	195	32.5	178.75

Sl No	DESCRIPTION		TOWER TYPES						
			DB2 (0° - 13°) +12M BE-TENSION	DC2 (15° - 28°) +12M BE-TENSION	DD45 (30° - 43°) +12M BE-TENSION	DDD45 (30° - 43°) +18M/+25M BE-TENSION	DD60 (30° - 55°) +12M BE-TENSION	DD60+12M BE - COMPLETE DEAD END(0°DEVIATION) - ONE SIDE	DD60+12M-DEAD END WITH 0° TO 15° DEVIATION ON BOTH LINE SIDE AND SUB-STATION (SLACK) SIDE
4	DESIGN WIRE TENSIONS (KG)								
	GROUND WIRE : GSW	32°C & FULL WIND/32°C & 75% WIND	4115.3/3390.8						
		32°C & NIL WIND	1247.7						
	OPGW	32°C & FULL WIND/32°C & 75% WIND	3778.3/3120.7						
		32°C & NIL WIND	983						
	CONDUCTOR :	32°C & FULL WIND/32°C & 75% WIND	BOTTOM CONDUCTOR - 7114.1 / 5829.8 MIDDLE CONDUCTOR - 7448.2 / 6097.4 TOP CONDUCTOR - 7701.4 / 6300.9						
		32°C & NIL WIND	2422.9						

Sl No	DESCRIPTION		TOWER TYPES				
			DB2 (0° - 13°) +12M BE-TENSION	DC2 (15° - 28°) +12M BE-TENSION	DD45 (30° - 43°) +12M BE-TENSION	DDD45 (30° - 43°) +18M/+25M BE-TENSION	DD60 (30° - 55°) +12M BE-TENSION
5	DESIGN WIND PRESSURE (KG/M2)						
	GROUND WIRE : GSW	32°C & FULL WIND/32°C & 75% WIND	277/207.75	277/207.75	277/207.75	284/213	277/207.75
	OPGW	32°C & FULL WIND/32°C & 75% WIND	277/207.75	277/207.75	277/207.75	284/213	277/207.75
	CONDUCTOR :	32°C & FULL WIND/32°C & 75% WIND	TC-226/170 MC-218/163.5 BC-205/153.75	TC-226/170 MC-218/163.5 BC-205/153.75	TC-226/170 MC-218/163.5 BC-205/153.75	TC-232/174 MC-225/168.75 BC-216/162	TC-226/170 MC-218/163.5 BC-205/153.75



NOTES:-
1. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.

KEY SKETCH OF BODY EXTENSIONS FOR 765KV D/C WZ-4-DA TOWER
-3.0/-1.5/+0/+1.5/+3.0M BODY EXTNS AT BASIC BODY LEVEL.
+4.5/+6.0/+7.5/+9.0M BODY EXTNS AT NORMAL TOWER LEVEL.

REVISIONS

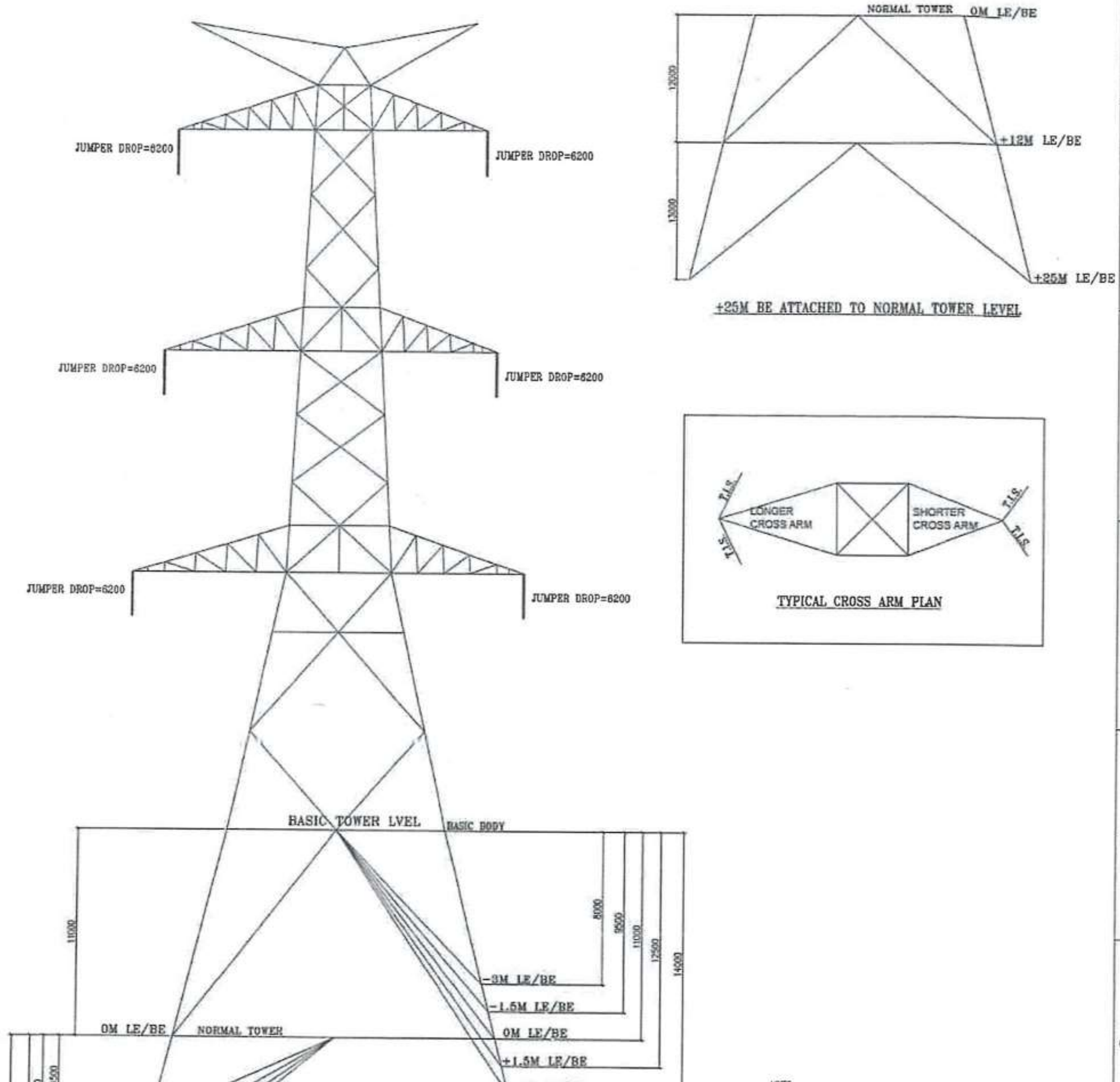
CLIENT: BHADLA SIKAR TRANSMISSION LIMITED
(A 100% WHOLLY OWNED SUBSIDIARY OF POWERGRID)

CONTRACTOR: L&T Construction
Power Transmission & Distribution IC

TITLE: TYPICAL KEY TOWER COMBINATION SKETCH FOR TOWER TYPE-"DA" (765KV D/C HEXA, AL59 ZEBRA) (WIND ZONE - 4)

SCALE	VARIES
SHEET NO.	13 OF 19

RELEASED FOR: ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☑ APPROVAL ☐ CONSTRUCTION



JUMPER DETAILS & KEY SKETCH OF BODY EXTENSIONS FOR
765KV D/C WZ-4-DB1 TOWER
-3.0/-1.5/+0/+1.5/+3.0M BODY EXTNS AT BASIC BODY LEVEL.
+4.5/+6.0/+7.5/+9.0/+18.0M BODY EXTNS AT NORMAL TOWER LEVEL.

NOTES:
1. T.I.S. REFERRED TO TENSION INSULATOR STRING
2. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.

DATE	REV.NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
[illegible]	[illegible]	FIRST SUBMISSION FOR APPROVAL	[illegible]	[illegible]	[illegible]	[illegible]

REVISIONS

CLIENT:
BHADLA SIKAR TRANSMISSION LIMITED
(A 100% WHOLLY OWNED SUBSIDIARY OF POWERGRID)

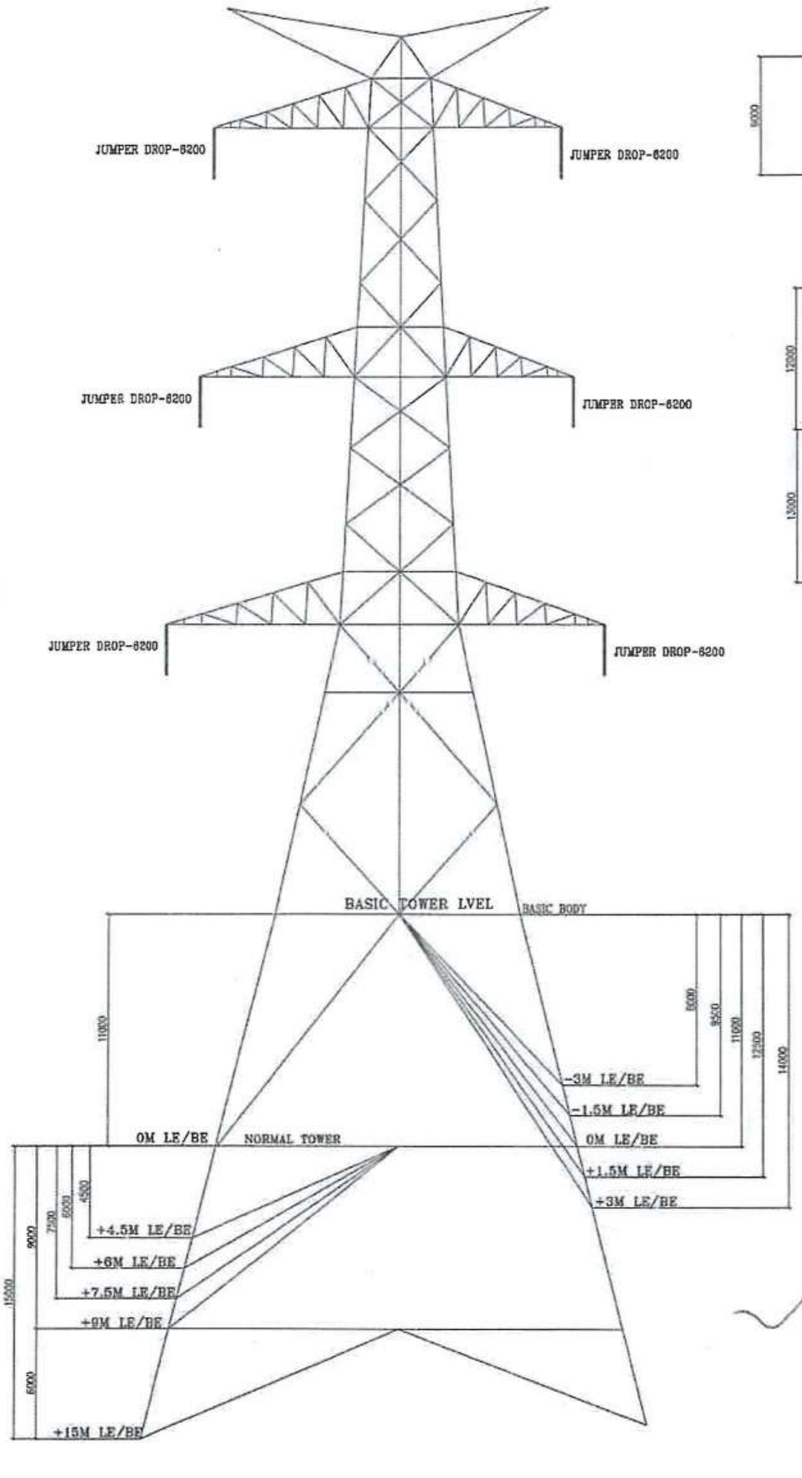
CONTRACTOR:
L&T Construction
Power Transmission & Distribution IC

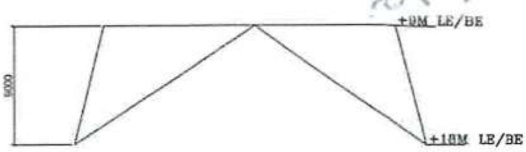
PROJECT:
"765kV D/C Bhadla-II PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-E through tariff based competitive bidding (TBCB route)

TITLE:
TYPICAL KEY TOWER COMBINATION SKETCH
FOR TOWER TYPE-"DB1"
(765KV D/C HEXA, AL59 ZEBRA)
(WIND ZONE - 4)

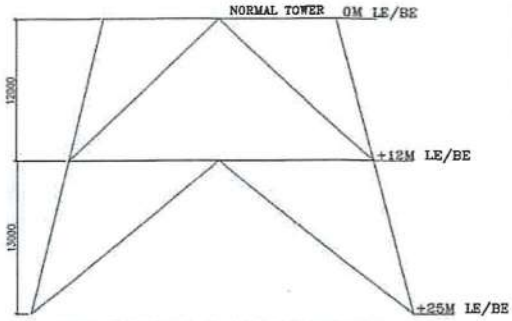
SCALE: VARIES
SHEET NO. 14 OF 19

RELEASED FOR: ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☑ APPROVAL ☐ CONSTRUCTION

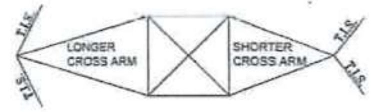




+18M BE ATTACHED TO NORMAL TOWER LEVEL



+25M BE ATTACHED TO NORMAL TOWER LEVEL



TYPICAL CROSS ARM PLAN

NOTES:-
1. T.I.S. REFERRED TO TENSION INSULATOR STRING
2. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.

JUMPER DETAILS & KEY SKETCH OF BODY EXTENSIONS FOR
765KV D/C WZ-4-DB2 TOWER
-3.0/-1.5/+0/+1.5/+3.0M BODY EXTNS AT BASIC BODY LEVEL.
+4.5/+6.0/+7.5/+9.0/+15.0M BODY EXTNS AT NORMAL TOWER LEVEL.

CLIENT: BHADLA SIKAR TRANSMISSION LIMITED
(A 100% WHOLLY OWNED SUBSIDIARY OF POWERGRID)

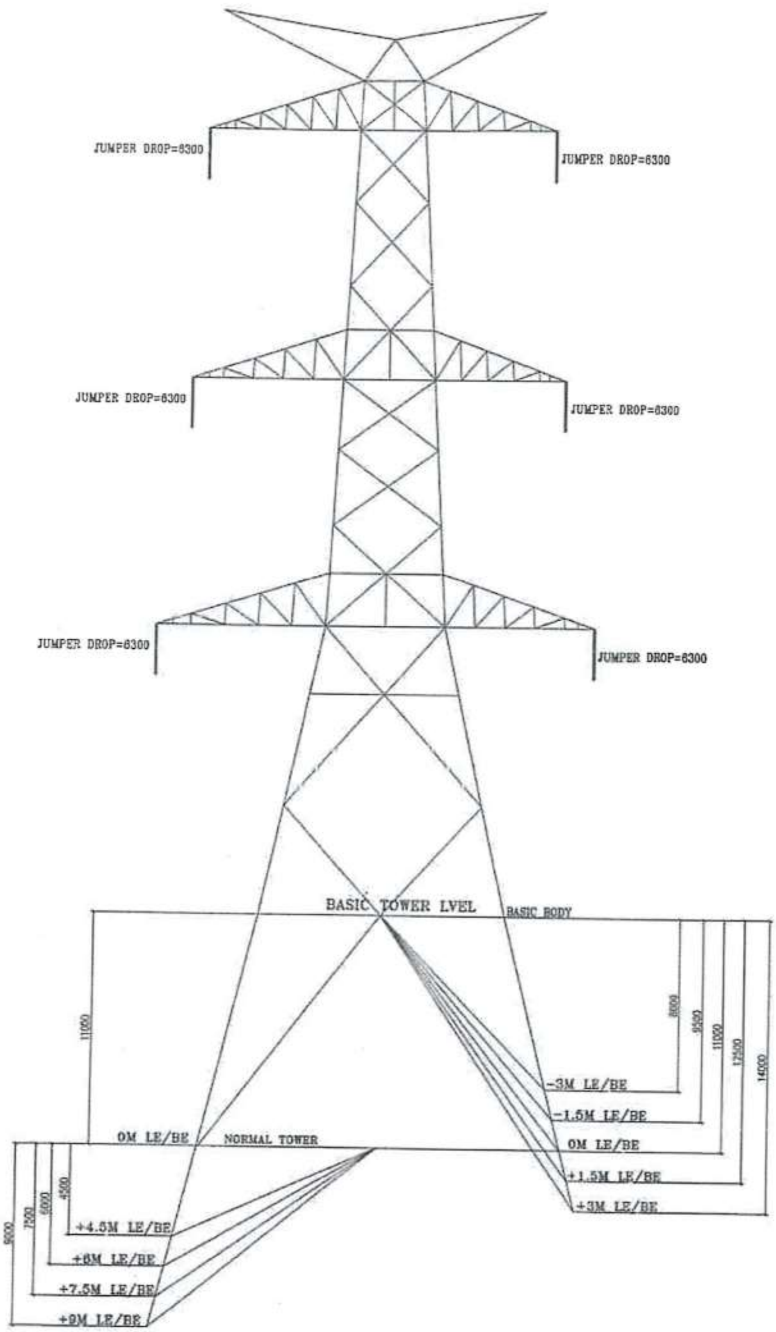
CONTRACTOR: L&T Construction
Power Transmission & Distribution IC

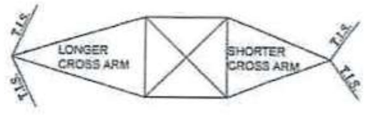
TITLE: TYPICAL KEY TOWER COMBINATION SKETCH FOR TOWER TYPE-"DB2" (765KV D/C HEXA. AL59 ZEBRA) (WIND ZONE - 4)

SCALE: VARIES
SHEET NO. 15 OF 19

DRG. No. 023017-T-TL-SD-DC-0064

RELEASED FOR: ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☑ APPROVAL ☐ CONSTRUCTION





TYPICAL CROSS ARM PLAN

JUMPER DETAILS & KEY SKETCH OF BODY EXTENSIONS FOR
765KV D/C WZ-4-DC1 TOWER
-3.0/-1.5/+0/+1.5/+3.0M BODY EXTNS AT BASIC BODY LEVEL.
+4.5/+6.0/+7.5/+9.0M BODY EXTNS AT NORMAL TOWER LEVEL.

NOTES:
1. T.I.S. REFERRED TO TENSION INSULATOR STRING
2. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED

REVISIONS

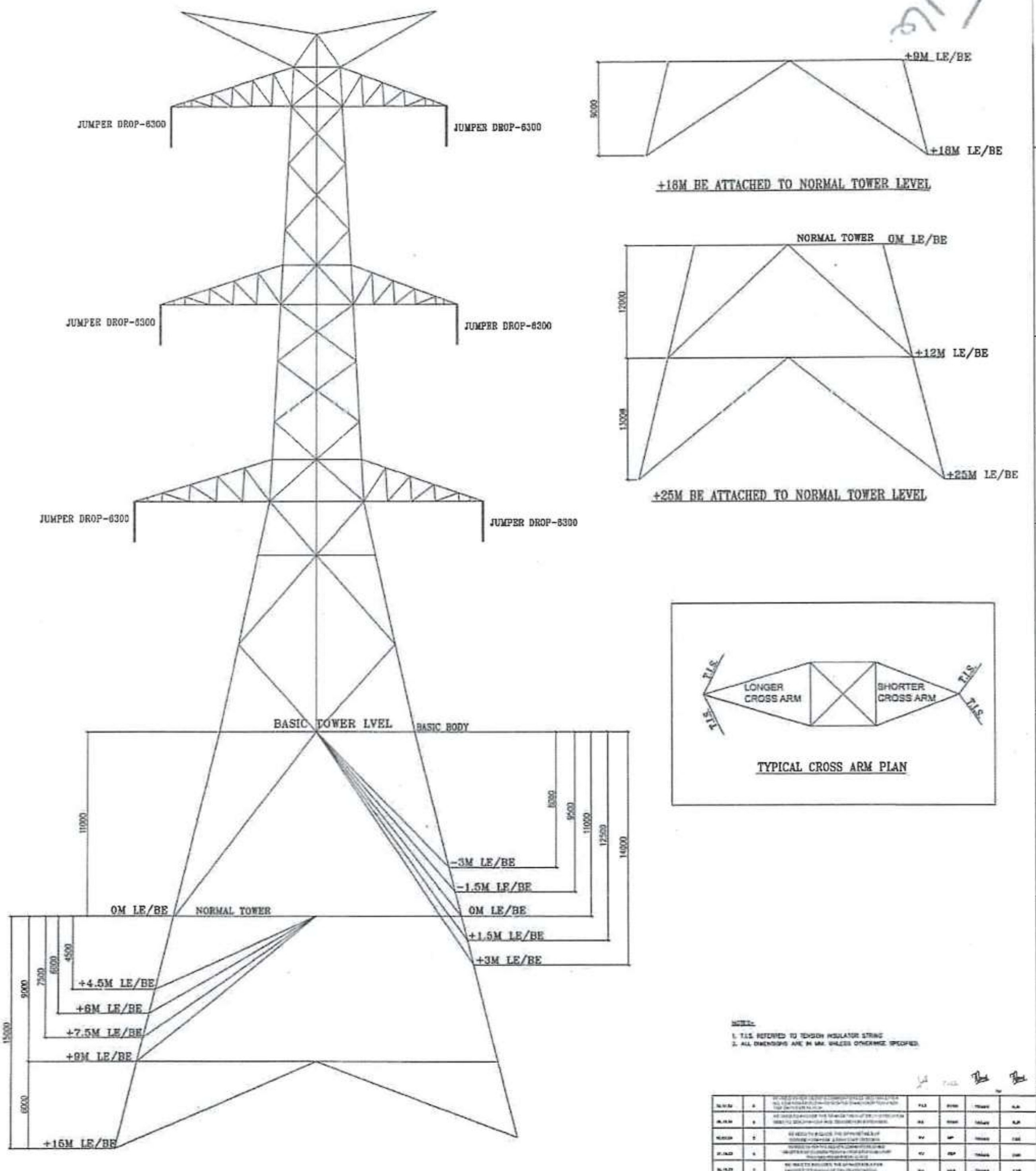
CLIENT: BHADLA SIKAR TRANSMISSION LIMITED
(A 100% WHOLLY OWNED SUBSIDIARY OF POWERGRID)

CONTRACTOR: L&T Construction
Power Transmission & Distribution IC

TITLE: TYPICAL KEY TOWER COMBINATION SKETCH FOR TOWER TYPE-"DC1" (765KV D/C HEXA. AL59 ZEBRA) (WIND ZONE – 4)

SCALE: VARIES
SHEET NO. 16 OF 19
SIZE: A4

RELEASED FOR: ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☑ APPROVAL ☐ CONSTRUCTION



JUMPER DETAILS & KEY SKETCH OF BODY EXTENSIONS FOR
765KV D/C WZ-4-DC2 TOWER
-3.0/-1.5/+0/+1.5/+3.0M BODY EXTNS AT BASIC BODY LEVEL.
+4.5/+6.0/+7.5/+9.0/+15.0M BODY EXTNS AT NORMAL TOWER LEVEL.

NOTES:-
1. T.I.S. REFERRED TO TENSION INSULATOR STRING
2. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.

DATE	REV.NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	FIRST SUBMISSION FOR APPROVAL	[illegible]	[illegible]	[illegible]	[illegible]

REVISIONS

CLIENT:
BHADLA SIKAR TRANSMISSION LIMITED
(A 100% WHOLLY OWNED SUBSIDIARY OF POWERGRID)

CONTRACTOR:
L&T Construction
Power Transmission & Distribution IC

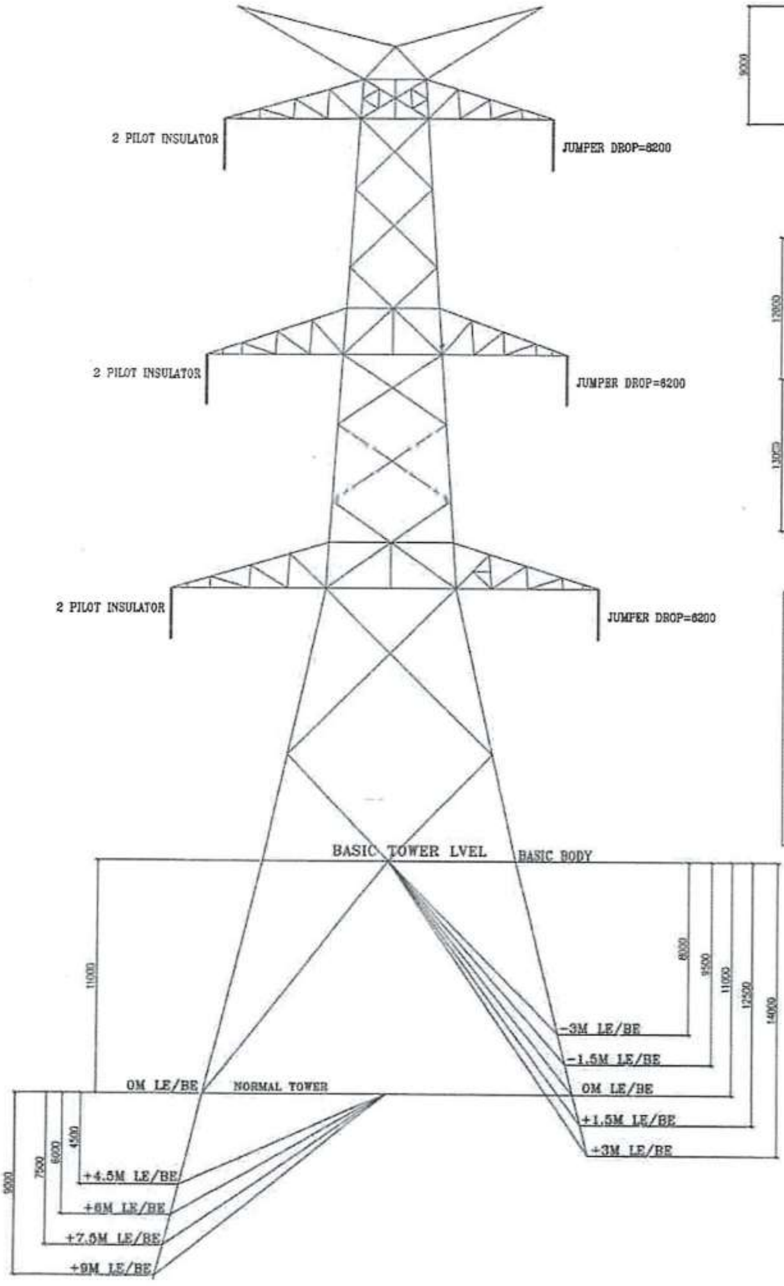
PROJECT:
"765KV D/C Bhadla-III PS - Sikar-II 2nd Transmission line associated with "Transmission scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II - Part-G through tariff based competitive bidding (TBCB route)
TW01 -Part-4 (Specification No. [illegible])
TW02 -Part-5 (Specification No. [illegible])
TW03 -Part-6 (Specification No. [illegible])

TITLE:
TYPICAL KEY TOWER COMBINATION SKETCH
FOR TOWER TYPE-"DC2"
(765KV D/C HEXA. AL59 ZEBRA)
(WIND ZONE - 4)

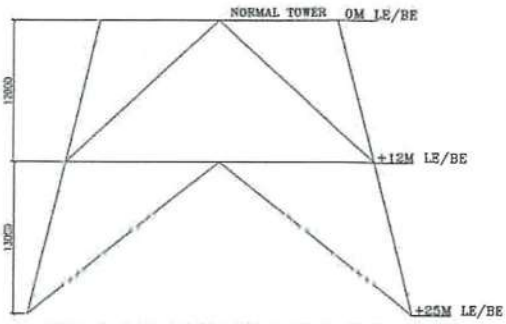
SCALE: VARIES
SHEET NO.: 17 OF 19

DWG. No. 0 2 2 0 1 7 - T - T L - 0 D - D C - 0 0 0 4

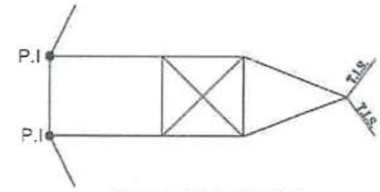
RELEASED FOR: ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☑ APPROVAL ☐ CONSTRUCTION



+18M BE ATTACHED TO NORMAL TOWER LEVEL



+25M BE ATTACHED TO NORMAL TOWER LEVEL



TYPICAL CROSS ARM PLAN

NOTES:-

1. T.I.S. REFERRED TO TENSION INSULATOR STRING
   P.I REFERRED PILOT INSULATOR.
2. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.

DATE	REV.NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	FIRST SUBMISSION FOR APPROVAL	[illegible]	[illegible]	[illegible]	[illegible]

REVISIONS

CLIENT:

BHADLA SIKAR TRANSMISSION LIMITED
(A 100% WHOLLY OWNED SUBSIDIARY OF POWERGRID)

CONTRACTOR:

L&T Construction
Power Transmission & Distribution IC

PROJECT:

[illegible]

TITLE:

TYPICAL KEY TOWER COMBINATION SKETCH
FOR TOWER TYPE-"DD45"
(765KV D/C HEXA, AL59 ZEBRA)
(WIND ZONE - 4)

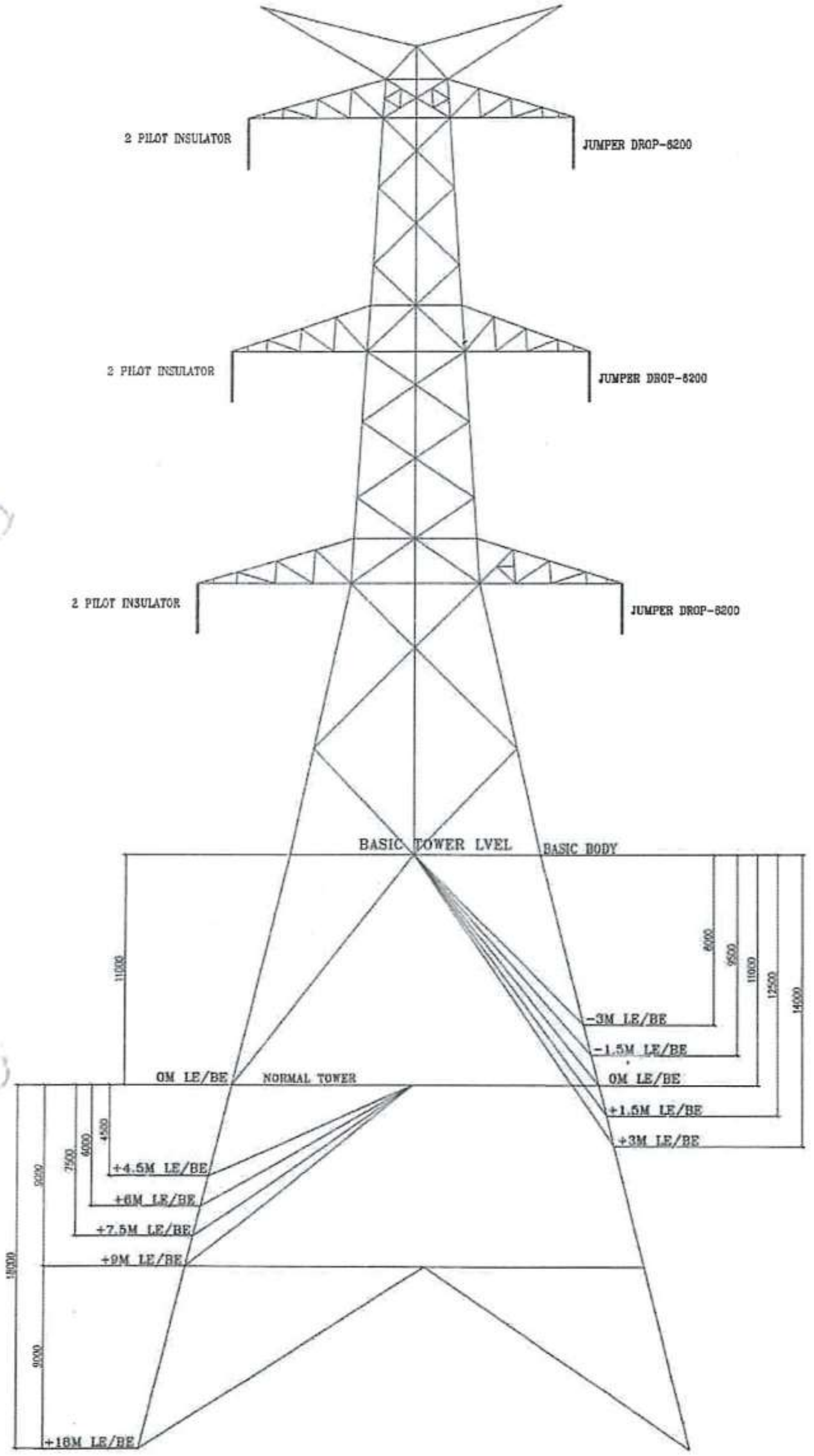
SCALE: VARIES

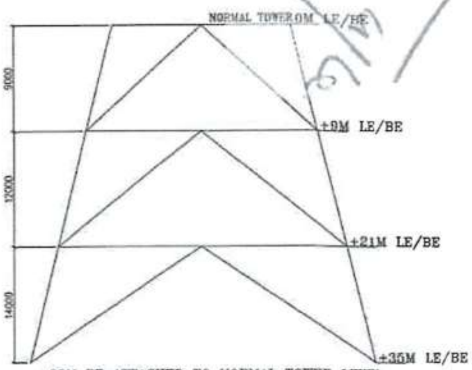
SHEET NO. 18 OF 19

DRG. No. 0 2 2 0 1 7 - T - T L - 0 D - D C - 0 0 0 4

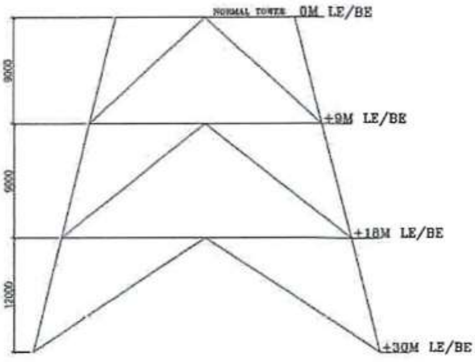
RELEASED FOR: ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☑ APPROVAL ☐ CONSTRUCTION

JUMPER DETAILS & KEY SKETCH OF BODY EXTENSIONS FOR
765KV D/C WZ-4-DD45 TOWER
-3.0/-1.5/+0/+1.5/+3.0M BODY EXTNS AT BASIC BODY LEVEL.
+4.5/+6.0/+7.5/+9.0 BODY EXTNS AT NORMAL TOWER LEVEL.

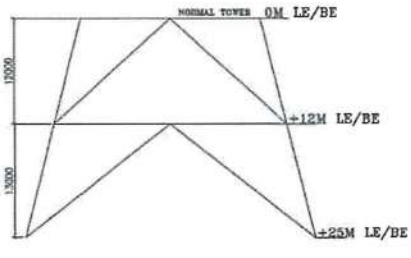




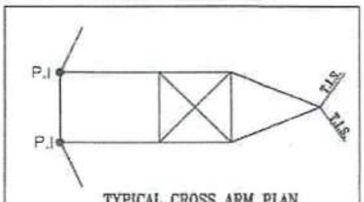
+35M BE ATTACHED TO NORMAL TOWER LEVEL



+30M BE ATTACHED TO NORMAL TOWER LEVEL



+25M BE ATTACHED TO NORMAL TOWER LEVEL



TYPICAL CROSS ARM PLAN

NOTES:-

1. T.I.S. REFERRED TO TENSION INSULATOR STRING
   P.I REFERRED PILOT INSULATOR.
2. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.

JUMPER DETAILS & KEY SKETCH OF BODY EXTENSIONS FOR
765KV D/C WZ-4-DD60 TOWER
-3.0/-1.5/+0/+1.5/+3.0M BODY EXTNS AT BASIC BODY LEVEL.
+4.5/+6.0/+7.5/+9.0/+18.0M BODY EXTNS AT NORMAL TOWER LEVEL.

REVISIONS

CLIENT:
BHADLA SIKAR TRANSMISSION LIMITED
(A 100% WHOLLY OWNED SUBSIDIARY OF POWERGRID)

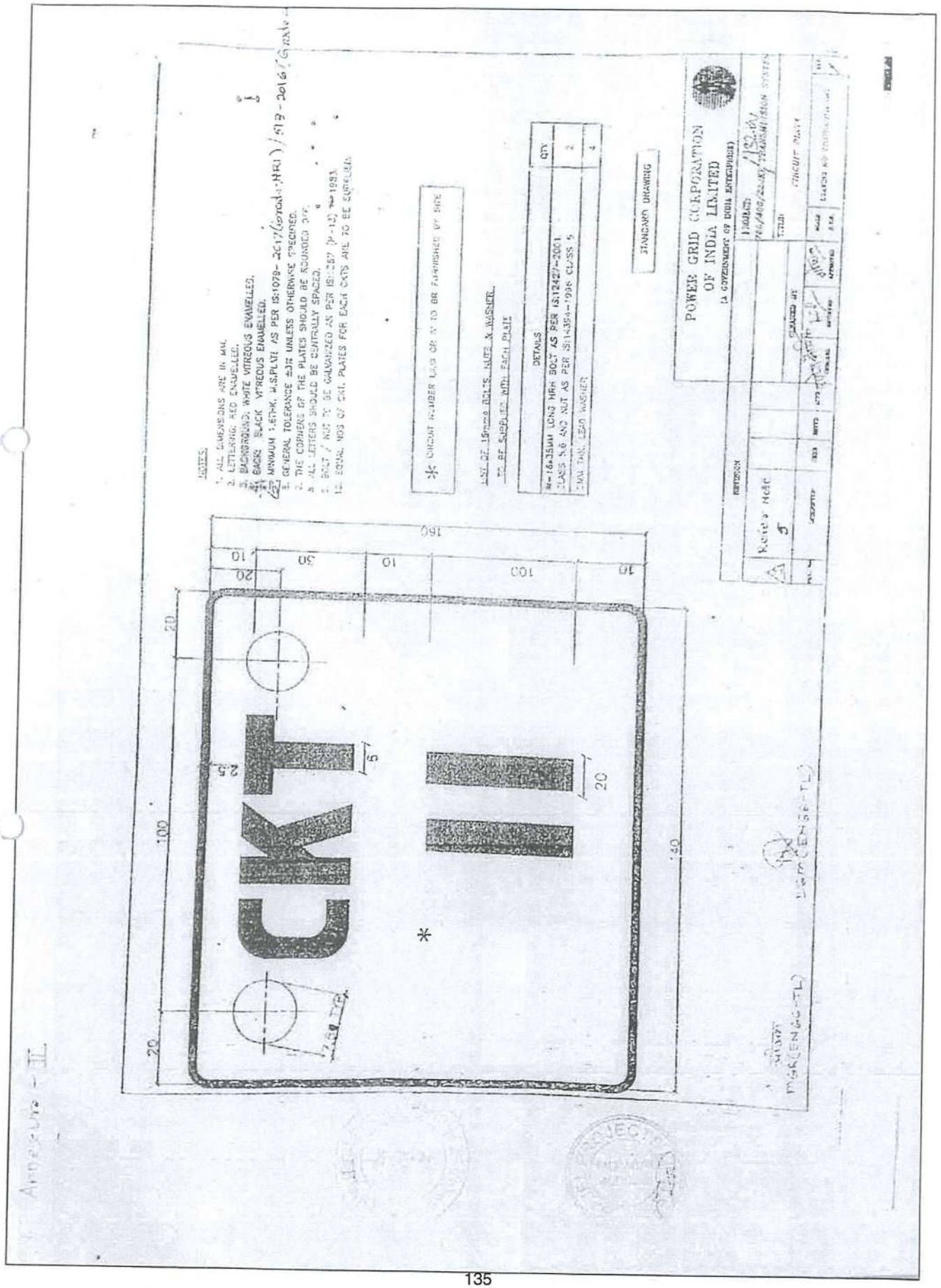
CONTRACTOR:
L&T Construction
Power Transmission & Distribution IC

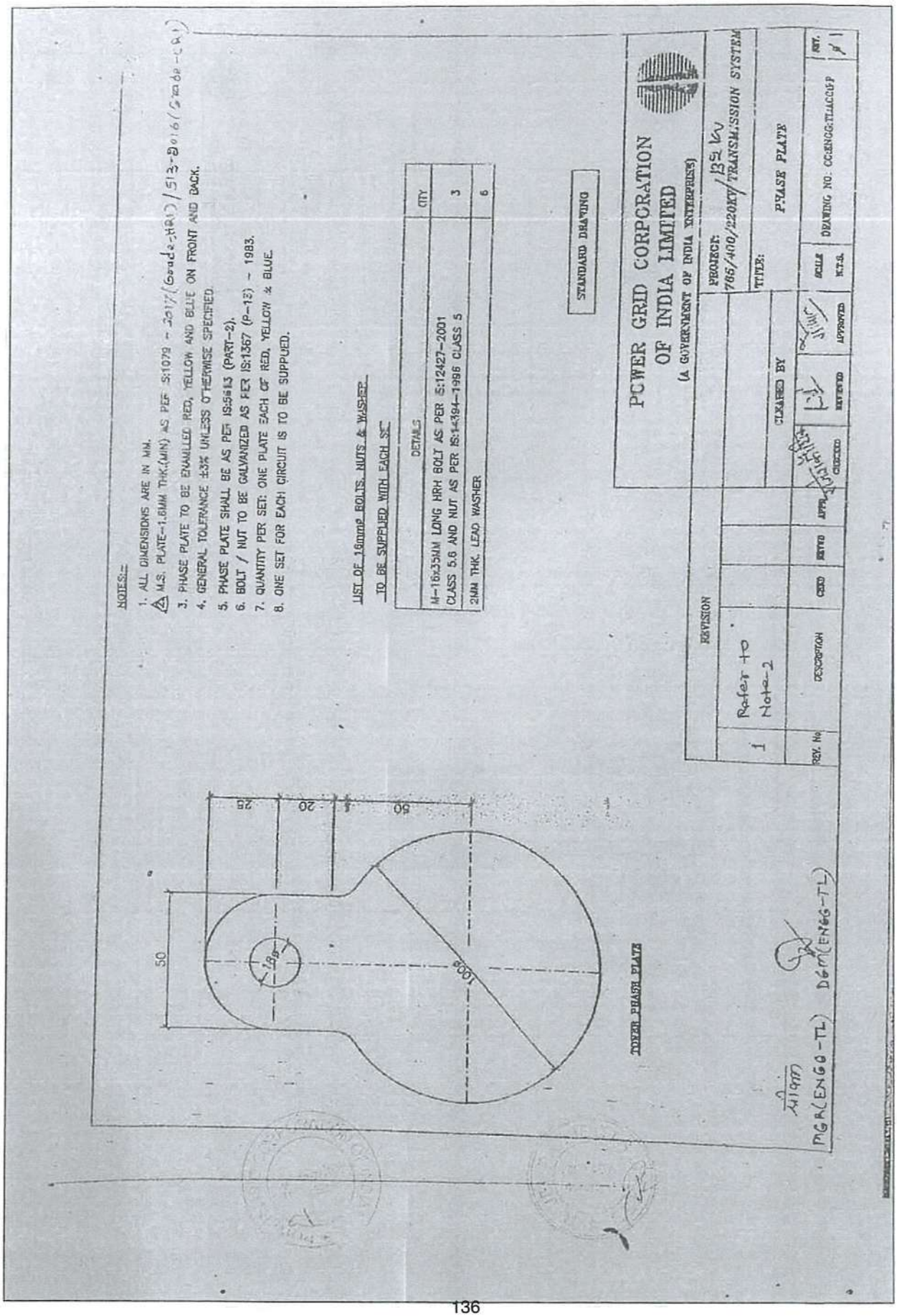
PROJECT:

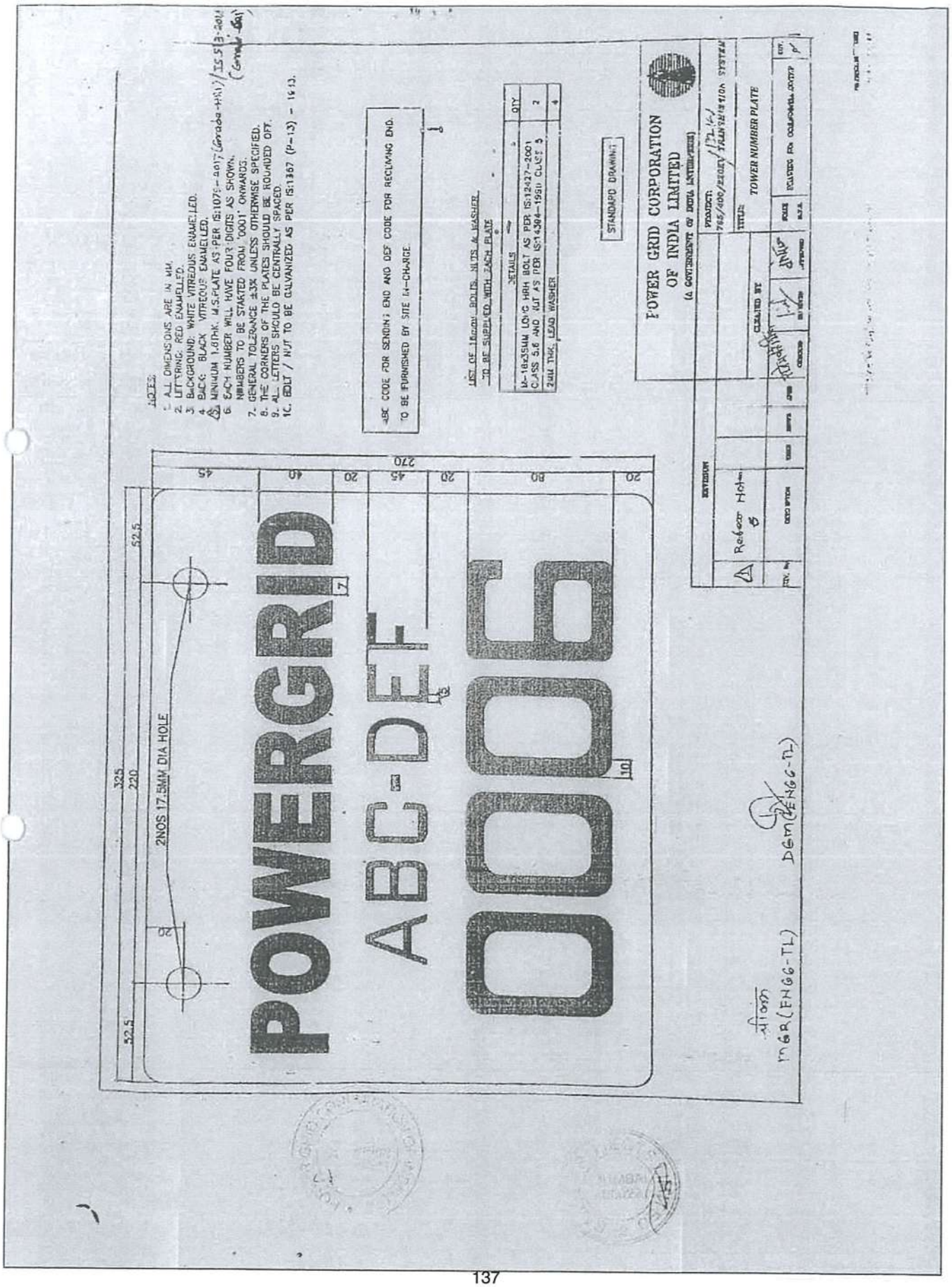
TITLE:
TYPICAL KEY TOWER COMBINATION SKETCH
FOR TOWER TYPE-"DD60"
(765KV D/C HEXA. AL59 ZEBRA)
(WIND ZONE - 4)

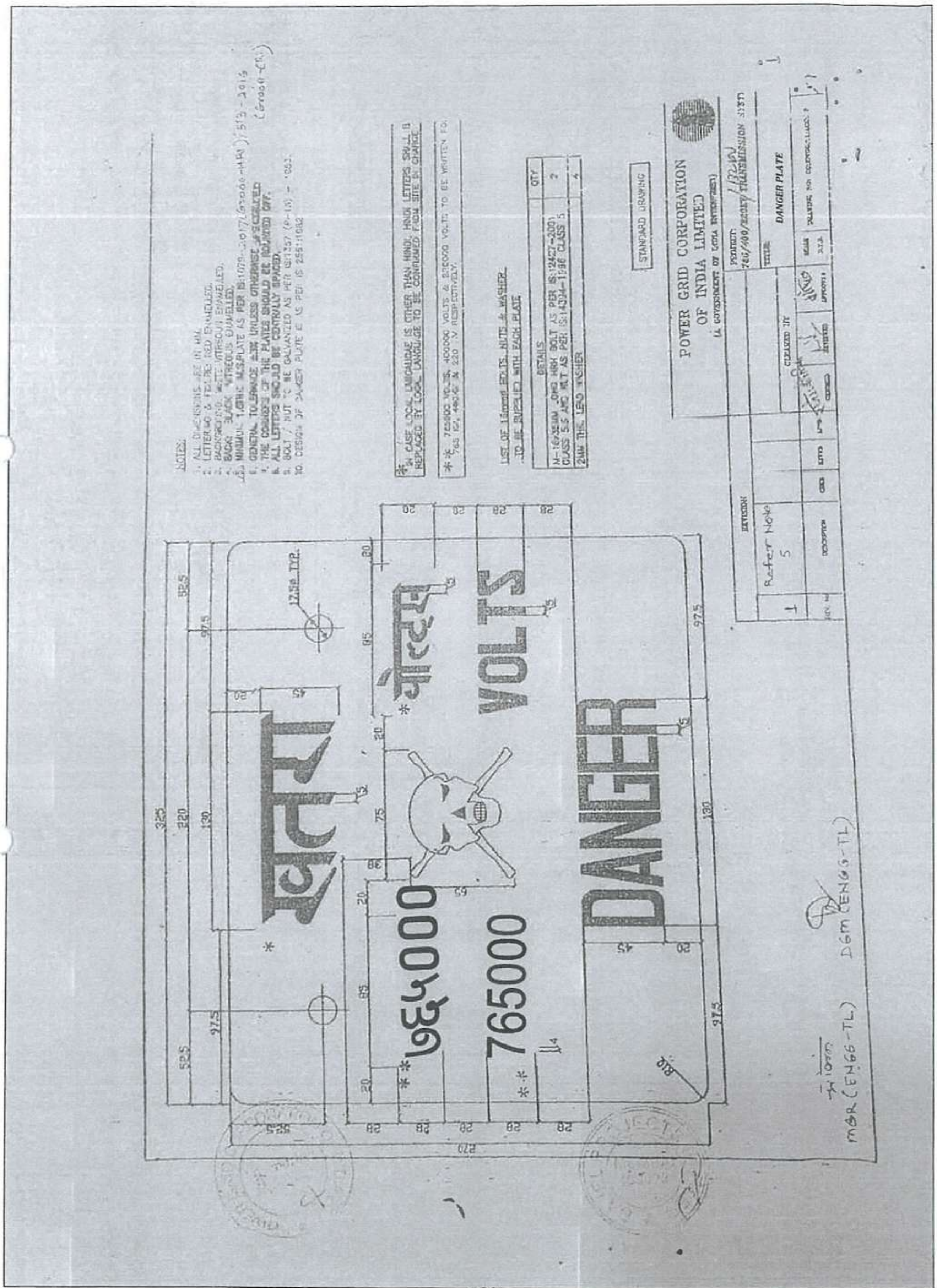
SCALE: VARIES
SHEET NO. 19 OF 19
SIZE: A4

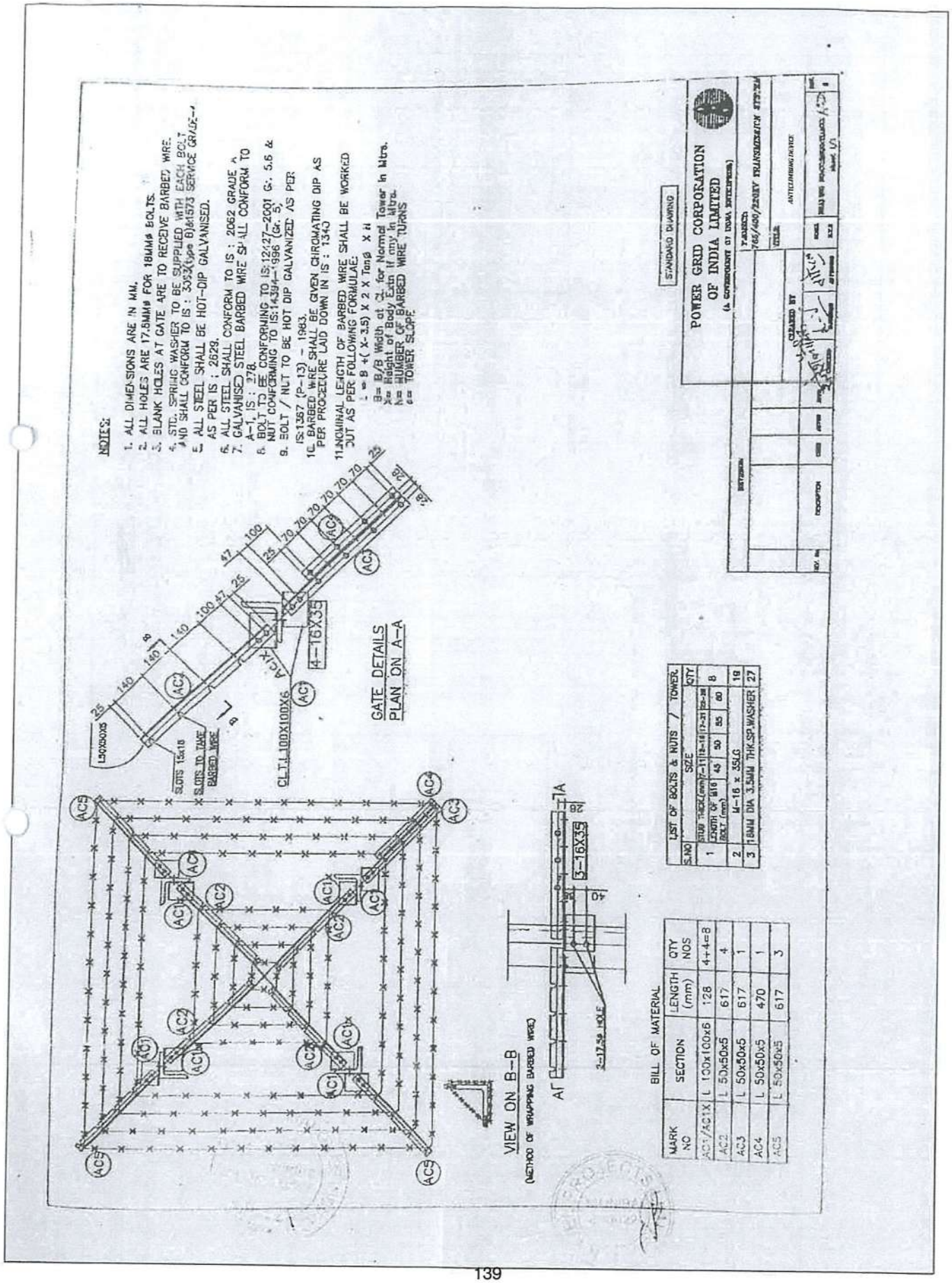
RELEASED FOR: ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☑ APPROVAL ☐ CONSTRUCTION

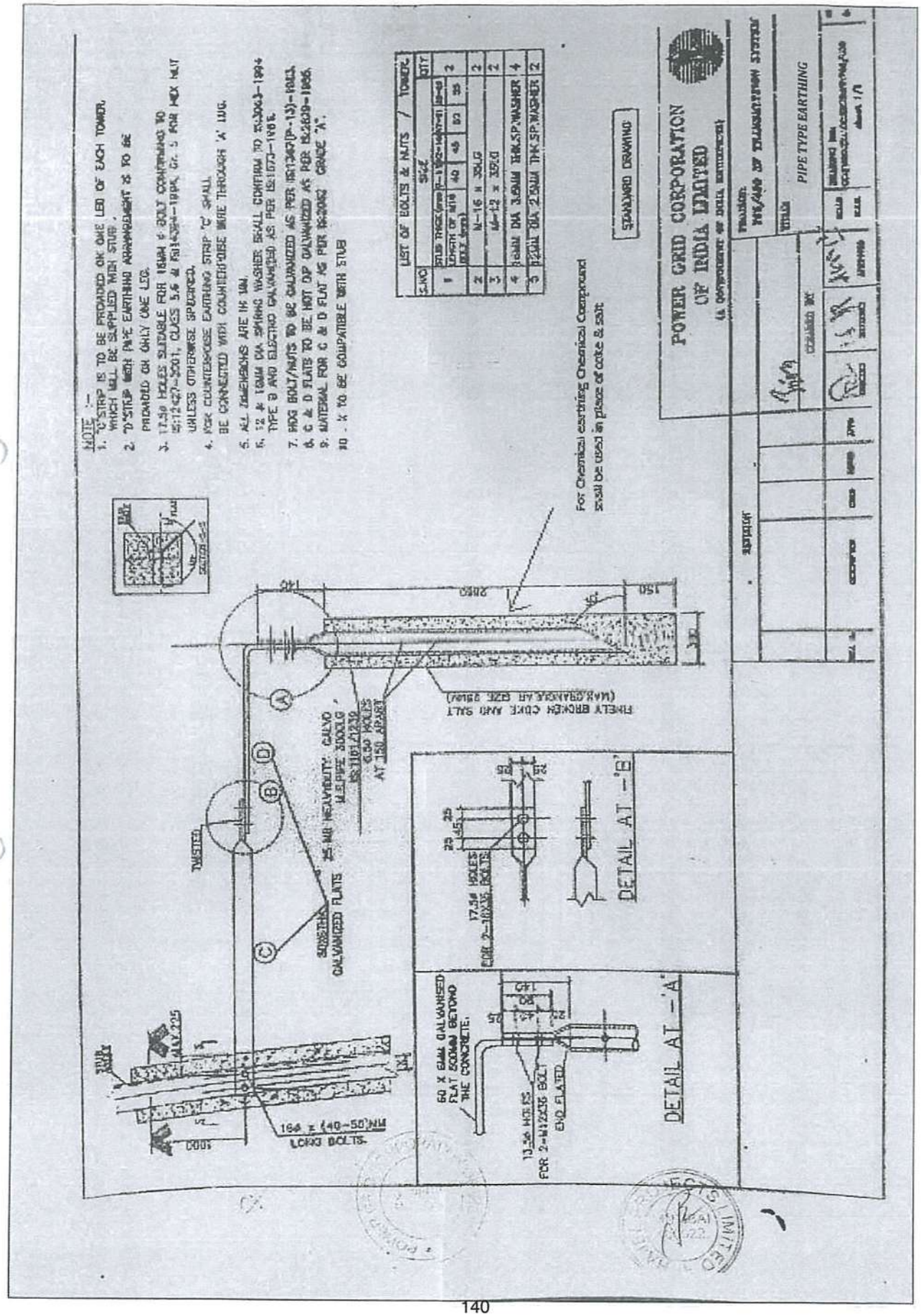


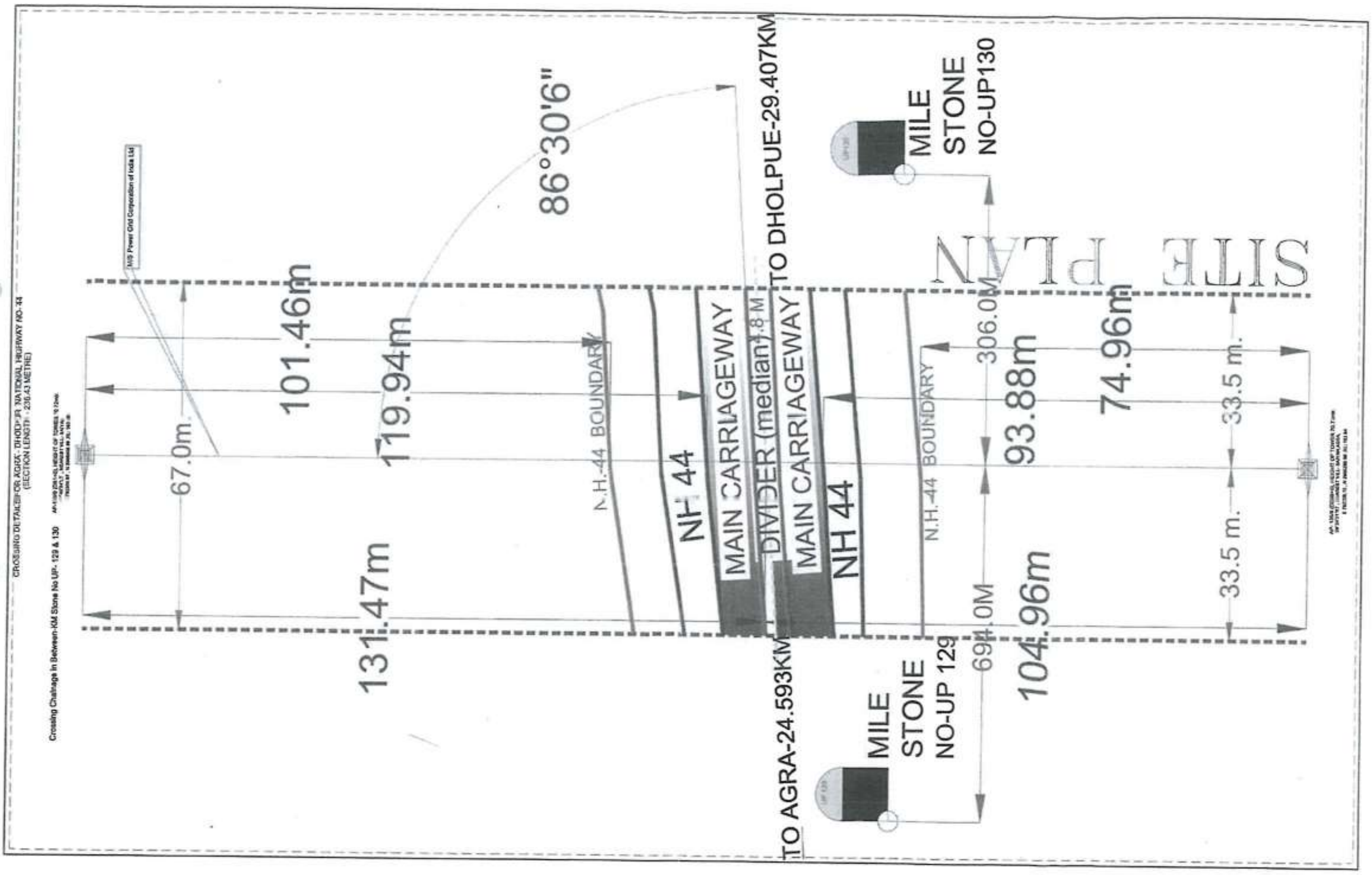


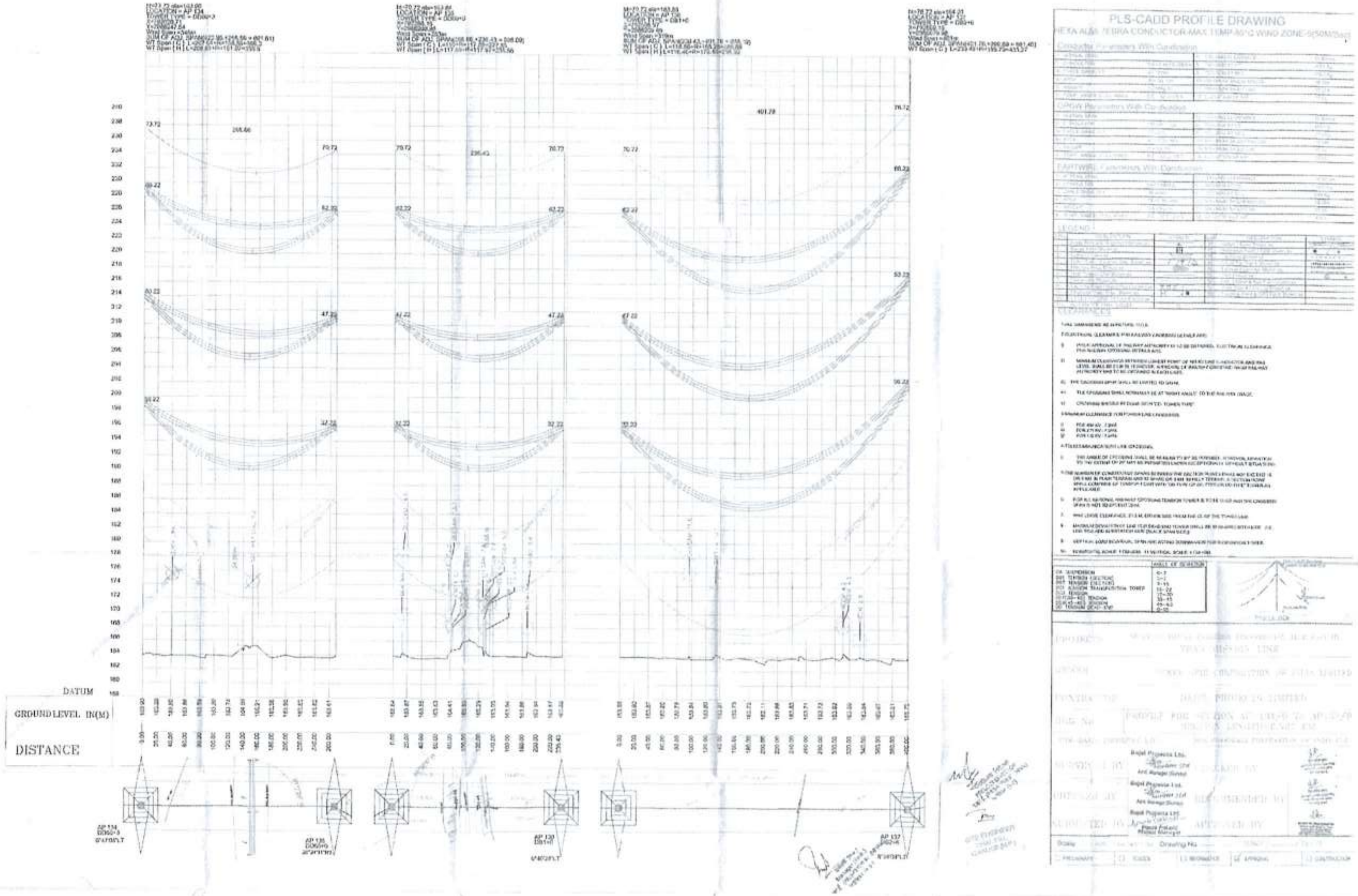


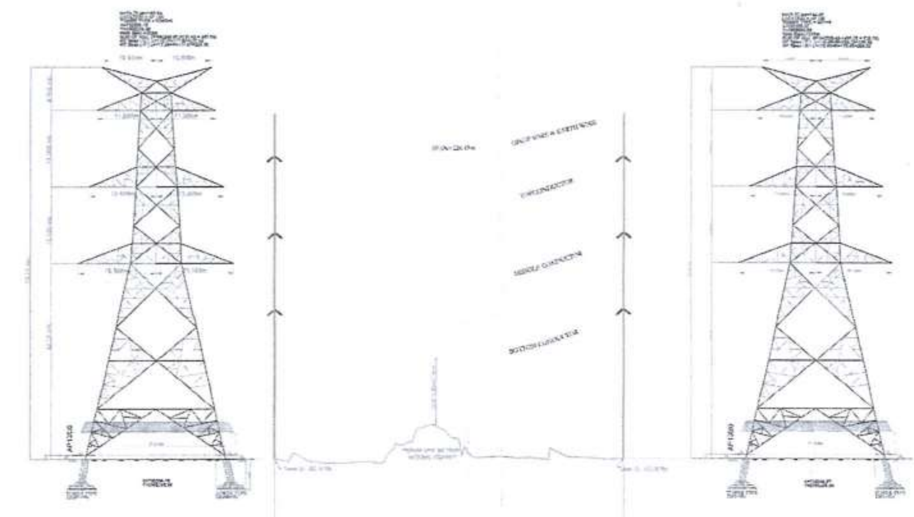

खतरा
७६५००० वोल्ट्स
765000 VOLTS
DANGER
NOTES:
1. ALL DIMENSIONS ARE IN MM.
2. LETTERING & FIGURE: RED ENAMELLED.
3. BACKGROUND: WHITE VITREOUS ENAMELLED.
4. BACK: BLACK VITREOUS ENAMELLED.
5. MINIMUM 1.6THK M.S.PLATE AS PER IS:1079-2017 (Grade-HR) / 513-2016 (Grade-CR)
6. GENERAL TOLERANCE ±3% UNLESS OTHERWISE SPECIFIED
7. THE CORNERS OF THE PLATES SHOULD BE ROUNDED OFF.
8. ALL LETTERS SHOULD BE CENTRALLY SPACED.
9. BOLT / NUT TO BE GALVANIZED AS PER IS:1367 (P-13) - 1983.
10. DESIGN OF DANGER PLATE IS AS PER IS 2551:1982
* IN CASE LOCAL LANGUAGE IS OTHER THAN HINDI, HINDI LETTERS SHALL B REPLACED BY LOCAL LANGUAGE TO BE CONFIRMED FROM SITE IN CHARGE
** 765000 VOLTS, 400000 VOLTS & 220000 VOLTS TO BE WRITTEN FO 765 KV, 400KV & 220 KV RESPECTIVELY.
LIST OF 16mm BOLTS, NUTS & WASHER TO BE SUPPLIED WITH EACH PLATE
DETAILS | QTY
M-16X35MM LONG HRH BOLT AS PER IS:12427-2001 CLASS 5.6 AND NUT AS PER IS:1434-1996 CLASS 5 | 2
2MM THK. LEAD WASHER | 4
STANDARD DRAWING
POWER GRID CORPORATION OF INDIA LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
PROJECT: 765/400/220KV TRANSMISSION SYST
TITLE: DANGER PLATE
REVISION
1 Refer Note 5
MGR (ENGG-TL)
DGM (ENGG-TL)






CROSSING DETAILS FOR AGRA - DHOLPUR NATIONAL HIGHWAY NO-44
Crossing Chainage In Between KM Stone No UP- 129 & 130
SITE PLAN
TO DHOLPUE-29.407KM
TO AGRA-24.593KM
86°30'6"
101.46m
119.94m
131.47m
67.0m
N.H.-44 BOUNDARY
NH 44
MAIN CARRIAGEWAY
DIVIDER (median) 4.8 M
MAIN CARRIAGEWAY
NH 44
N.H.-44 BOUNDARY
306.0M
93.88m
74.96m
33.5 m.
33.5 m.
694.0M
104.96m
MILE STONE NO-UP130
MILE STONE NO-UP 129


PLS-CADD PROFILE DRAWING
DATUM
GROUND LEVEL IN(M)
DISTANCE



SL. NO.	PARTICULARS	DETAILS OF PLAN & ELEVATION
1	NAME OF THE POWER LINE CROSSING	[illegible]
2	NAME OF THE ROAD	NATIONAL HIGHWAY-44
3	LENGTH OF THE CROSSING SPAN	236.43 M
4	MINIMUM VERTICAL CLEARANCE OVER ROAD TOP TO THE LOWEST CONDUCTOR AT MAXIMUM SAG	[illegible]
5	DISTANCE FROM ROAD CENTER TO THE NEAREST TOWER CENTER	LOC NO AP-135 - 104.96 M LOC NO AP-136 - 131.47 M
6	CROSSING CHAINAGE	Not Available
7	DISTANCE FROM ROAD EDGE TO TOWER CENTER	LOC NO AP-135 - 93.88 M LOC NO AP-136 - 119.94 M
8	DISTANCE FROM CROSSING POINT KM STONES	[illegible]
9	DETAILS OF FOUNDATION AND EARTHING ARRANGEMENT	AS SHOWN IN DRAWING
10	HEIGHT OF TOWER ABOVE GROUND LEVEL	[illegible]
11	SIZE OF CONDUCTOR	[illegible]
12	NO. OF STAYS REQUIRED	NOT REQUIRED, TOWER ARE SELF SUPPORTED
13	PROTECTION OF ASSEMBLY TO THE TOWER	[illegible] TRIPPING TIME [illegible] FROM TIME OF OCCURRENCE OF FAULT TO ITS CLEARANCE
14	NORMAL DESIGNED SPAN OF EACH TOWER OF PROPOSED CROSSING	[illegible] FOR EACH TOWER OF CROSSING SPAN
15	TRIPPING TIME OF EACH RELAY	[illegible]
16	ANGLE OF CROSSING	[illegible]
17	NO. OF INSULATORS ON POWER CONDUCTOR/PHASE	[illegible]
18	TOTAL NO OF CONDUCTOR FOR CROSSING SPAN	[illegible]
19	WIND ZONE	[illegible]

CONDUCTOR DETAILS:

1.	CONDUCTOR	[illegible]
2.	CONDUCTOR OVERALL DIAMETER	[illegible]
3.	NO OF ALUMINIUM STRANDS	[illegible]
4.	NO OF STEEL STRANDS	[illegible]
5.	AREA	[illegible]
6.	WEIGHT OF CONDUCTOR	[illegible]
7.	TENSION [illegible] AT [illegible] DEGREE WITH FULL WIND	[illegible]
8.	TENSION [illegible] AT 0 DEGREE WITH FULL WIND	[illegible]
9.	NORMAL SPAN	[illegible]
10.	MAX. SAG AT [illegible] DEGREE WITH FULL WIND	[illegible]
11.	GROUND CLEARANCE	[illegible]
12.	SAG [illegible]	[illegible]
13.	MAX. TEMP. OF CONDUCTOR	[illegible] DEGREE

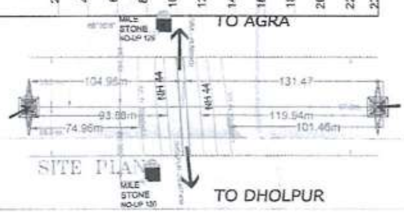
EARTHWIRE DETAILS:

1.	NO. OF STEEL STRANDS	07 Nos.
2.	DIAMETER OF EACH STEEL STRANDS	3.66 mm
3.	OVERALL DIAMETER OF EARTHWIRE	10.98mm
4.	AREA OF THE EARTHWIRE	73.58 Sq.mm
5.	WEIGHT OF THE EARTHWIRE	0.583 kg/m
6.	UTS	6972.477 kg

DETAILS OF PRECEDING AND SUCCEEDING SPAN OF PROPOSED CROSSING

PRECEDING SPAN			SUCCEEDING SPAN		
LOC NO	TYPE OF TOWER	SPAN	LOC NO	TYPE OF TOWER	SPAN
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GROUND LEVEL (m)	163.84	163.87	163.55	163.63	164.41	165.93	165.29	163.63	163.94	163.86	163.94	163.87	163.88
CHAINAGE (m)	0.00	20.00	40.00	60.00	80.00	100.00	120.00	140.00	160.00	180.00	200.00	220.00	236.43



135/0

LOC. NO. - AP-135/0
DD60+0
ANGLE -28°24'31"RT
VILL- Saiyan

CO-ORDINATE -
E: 77°56'39.76"
N: 26°58'04.46"

136/0

LOC. NO. - AP-136/0
D81+0
ANGLE - 05°40'54"LT
VILL- Saiyan

CO-ORDINATE -
E: 77°56'47.77"
N: 26°58'01.75"

PURCHASER:	POWER GRID CORPORATION OF INDIA LIMITED		
PROJECT:	765kV DC DAUSA TO GHIROR TRANSMISSION LINE Part III TRANSMISSION LINE		
FOR-BAJEL PROJECTS LTD		FOR POWERGRID CORPORATION OF INDIA LTD.	
Bajel Projects Ltd. Arindam Sen Asst. Manager (Survey)	Bajel Projects Ltd. (Apurb Prakash) Project Manager	[illegible]	प्रेम प्रकाश राय / Prem Prakash Rai [illegible]
CHECKED BY	SUBMITTED BY	CHECKED BY	SUBMITTED BY
FOR NHAI DEPARTMENT			

LOCATION NO - AP-135/0 TO AP-136/0 | SCALE - NOT TO SCALE