

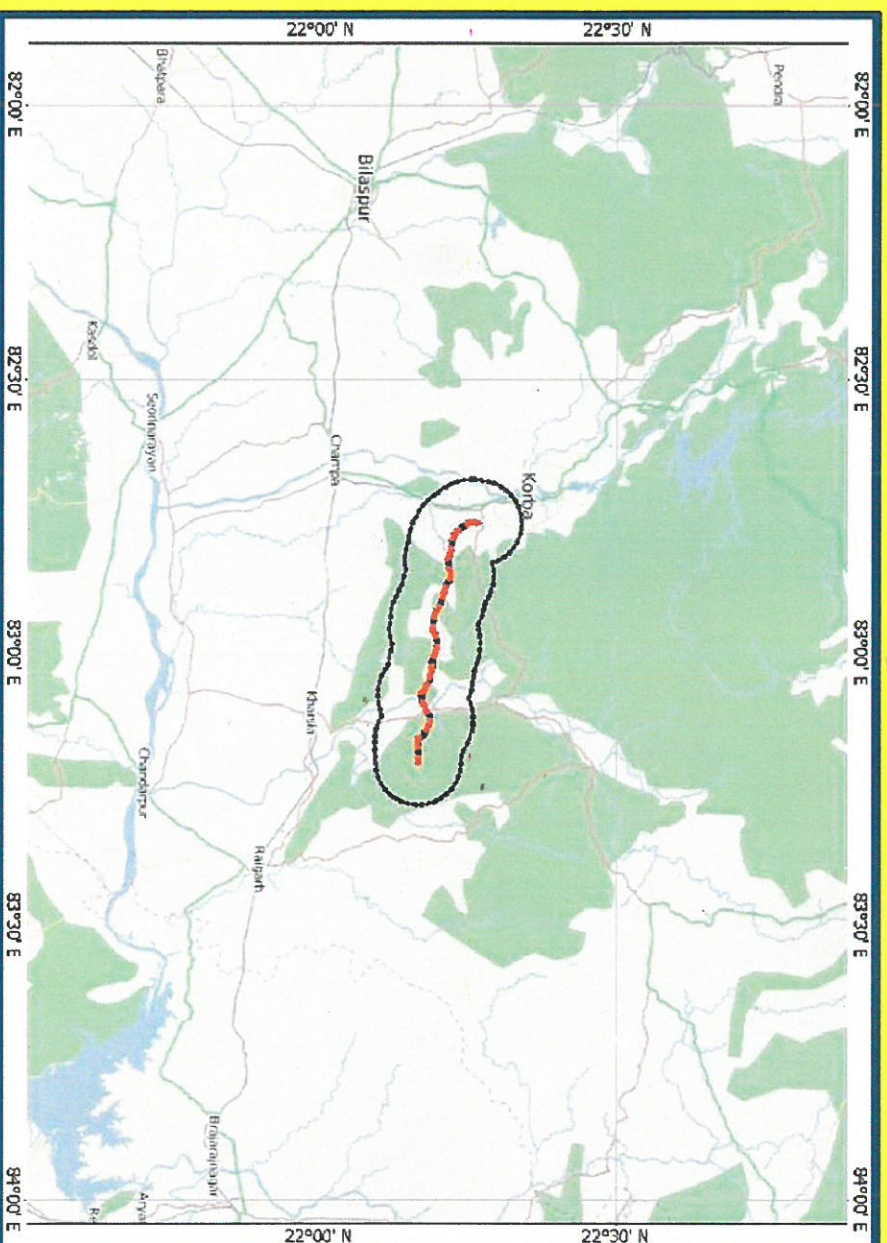


POWERGRID CORPORATION OF INDIA LIMITED

CA LAND SURVEY REPORT

for

The proposed 765kV D/C Jharsuguda – Korba
Transmission Line (Part-II)



Submitted By:-
Bajaj Electricals Limited
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Off Eastern Express Highway, Sion (East)- Mumbai -400 022 (INDIA).
Mob : +91 8879656978 / 9560686978 ; Tel : 022-24064000.



INTRODUCTION & PURPOSE

POWERGRID CORPORATION OF INDIA LIMITED (a Govt. of India enterprises), the central transmission utility (CTU) of the country, has been entrusted upon the construction of various EHV transmission lines and associated state-of-the art substations towards establishment and operation of regional and national power grid to transfer of bulk power within & across the regions with reliability.

As a part of the above one 765KV D/C Jharsuguda-Dharamjaygarh Transmission Line-2 (WR Portion) Circuit 3&4 is being constructed under "common system associated with East Coast Energy Pvt. Ltd. & NCC power projects LTOA Generation project in Shrikakulam Area (Part-B)".

This line is passing through the state of Chhattisgarh wherein there are huge forest patches and having no other alternative from forest land. However, the route alignment of above said transmission line is carried out keeping in view of involvement of minimum forest area. The route alignment transverse through the forest patches and while construction of said transmission line, permission from the forest department has to be taken. Hence, in order to prepare the forest proposal, exact areas of the forest land are to be known. Therefore the activity of DGPS survey of forest patches for the said transmission line is carried out. The route is passing through Raigarh, Dharamjaygarh and Korba forest divisions.

Compensatory afforestation:

Compensatory afforestation in lieu of diversion of forest land Compensatory afforestation involves identification of non forest land or degraded forest land, work schedule, cost structure of plantation, provision of funds, mechanism to ensure the utilization of funds and monitoring mechanism etc. Hence, it is one of the most important conditions stipulated by the Central Government while approving proposals for de-reservation or diversion of forest land for non-forest use. It is essential that with all such proposals, a comprehensive scheme for compensatory afforestation is formulated and submitted to the Central Government. The comprehensive scheme is to include the details of non-forest/ degraded forest area identified for compensatory afforestation, map of area to be taken up for compensatory afforestation, year wise phased forestry operations, details of species to be planted and a suitability certificate from afforestation/ management point of view along with the cost structure of various operations.

Compensatory afforestation land details :-

Sr. No.	Compartment No.	Village	Range	Division	State	Total Area (Ha)	Proposed Area For CA(Ha)
1	OA1465	Nondaha	Kartala	Korba	Chattisgarh	12.736	12.736
2	OA1443	Madhavan	Kartala	Korba	Chattisgarh	33.019	26.742
3	OA1467	Nondaha	Kartala	Korba	Chattisgarh	13.68	13.68

सहा. प्र. वि. इंजीनियर / M. H. SIDDHIOU
अधीनस्थ / SENIOR ENGINEER
MNEC Consultants Pvt. Ltd. KORBA



SCOPE OF WORK:

The scope of work as per the work order includes the following activities;

- i) Carrying out DGPS mapping of Proposed CA land i.e. taking DGPS co-ordinates of CA land boundary in accordance to applicable IS specification & drawings.
- ii) Compartment wise DGPS coordinates of CA area.
- iii) Geo-reference of CA land compartment wise.
- iv) .kml file of CA land compartment wise.
- v) Shape file of CA land compartment wise.

METHODOLOGY:

In order to meet the requirements of the scope of work M/s Logic Mapping adopted the following methodology;

- i) Logic Mapping received compartment details and coordinates of CA land from the client.
- ii) Logic Mapping carried out the DGPS survey of those forest patches after conducting site verification.
- iii) The DGPS data was post processed at the office of Logic Mapping.
- iv) A geo-referenced map is prepared and submitted to client.
- v) After approval to the said CA maps, the list of coordinates of the forest compartments and its calculated area after DGPS survey is submitted and a report to this respect is also submitted to the client.

एच. एच. सिन्हा / M. H. SINGH
वरिष्ठ अभियंता / Sr. Engineer
पारंपरिक, कोरबा / POWERGRID, Korba



INSTRUMENTS USED& INSTRUMENT SETTINGS :

Following latest DGPS instrument of Leica was used for carrying out the DGPS survey.

Sr. No.	Name of Instrument	Model	Make	Qty.
1.	DGPS	GS14	Leica	2

Sokkia DGPS Software Setting Parameters:

Job configuration

Display

Coordinate Systems

Units

Equipment

Save

Process

Linework

Adjustment

TS Computations

Quality Control

Setup

Conversion

Projection

Datum

Geoid

Coordinate type

Zone 43 : 72E to 78E

WGS84

Egm96

Datum Lat, Lon, Elevation

Custom...

Custom...

Geoids List...

OK

Cancel

Instrument Setting

Job configuration

Display

Coordinate Systems

Units

Equipment

Save

Process

Linework

Adjustment

TS Computations

Quality Control

Precisions

Time

Roads

Angles

Digits after decimal

Distances

Coordinates (N,E,X,Y,Z)

Heights

Angles (seconds)

Angles (dec. degrees)

Lat, Lon (seconds)

Lat, Lon (dec. degrees)

Area

Volumes

Time (seconds)

OK

Cancel

Parameters Fed Prior To Observations in GPS



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Report On DGPS Survey of Forest Stretches For 765KV D/C Jharsuguda-Dharamjaygarh (Korba) TL-2 CKT-3&4

Job configuration

General | A priori UWE

Confidence Level
☐ 68%
☒ 95%
☐ 99%

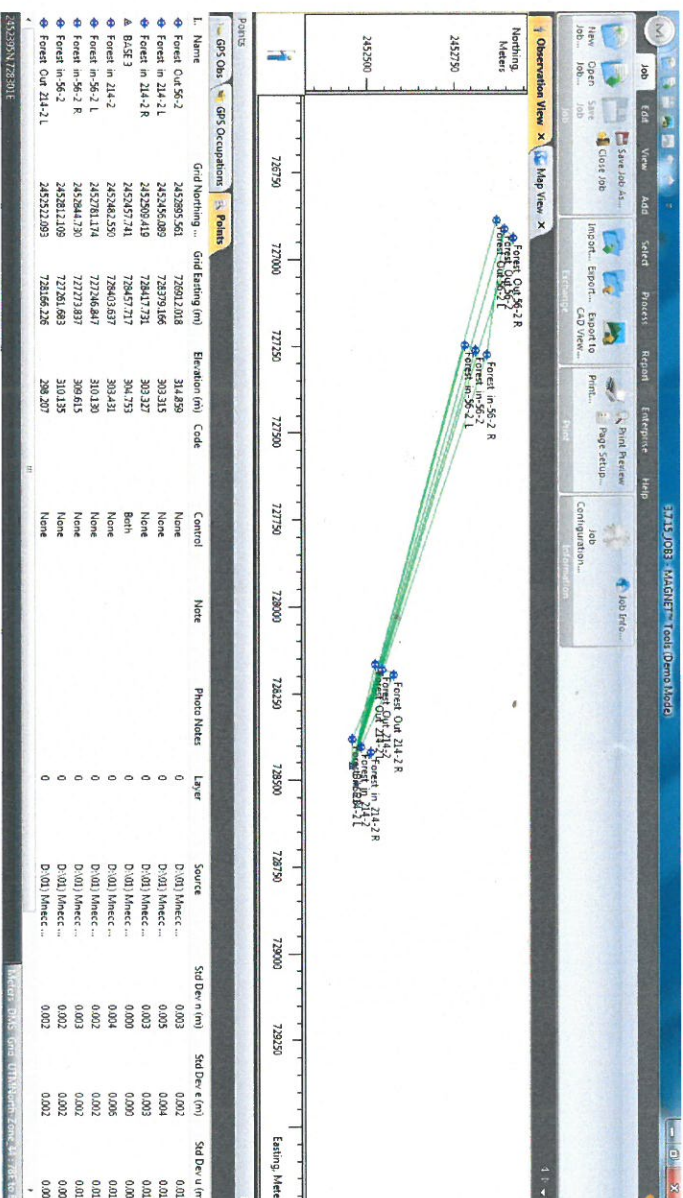
Rejection Criterion
☒ By Quality Control
☐ Tau Criterion

Adjust Dimension
☐ Interactive Blunder Rejection
☒ Automatic Blunder Rejection

Adjustment Type
☒ Analyse Repeated Observations
☒ Analyse Identical Points
☒ Control Tie Analysis

Save configuration | List configurations | OK | Cancel

POST PROCESSING OF DGPS DATA WITH MAGNET TOOLS SOFTWARE





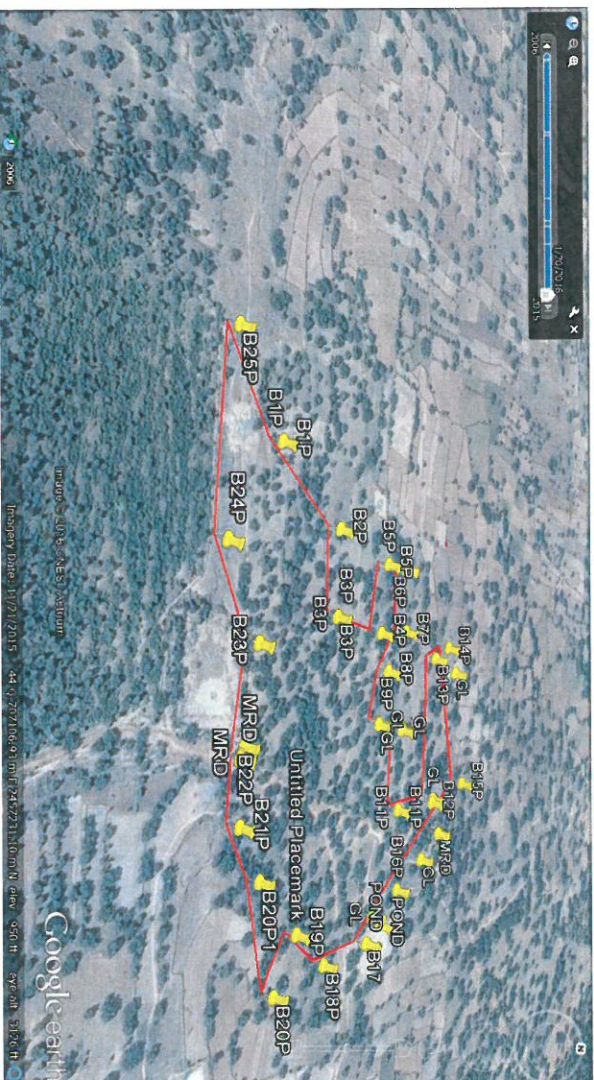
BRIEF ABOUT THE PROJECT & AREA:

The entire survey mentioned in this report is carried out in the Korba District of Chhattisgarh State. Chhattisgarh State has majority of tribal areas and huge forest patches. The following map depicts the study area.

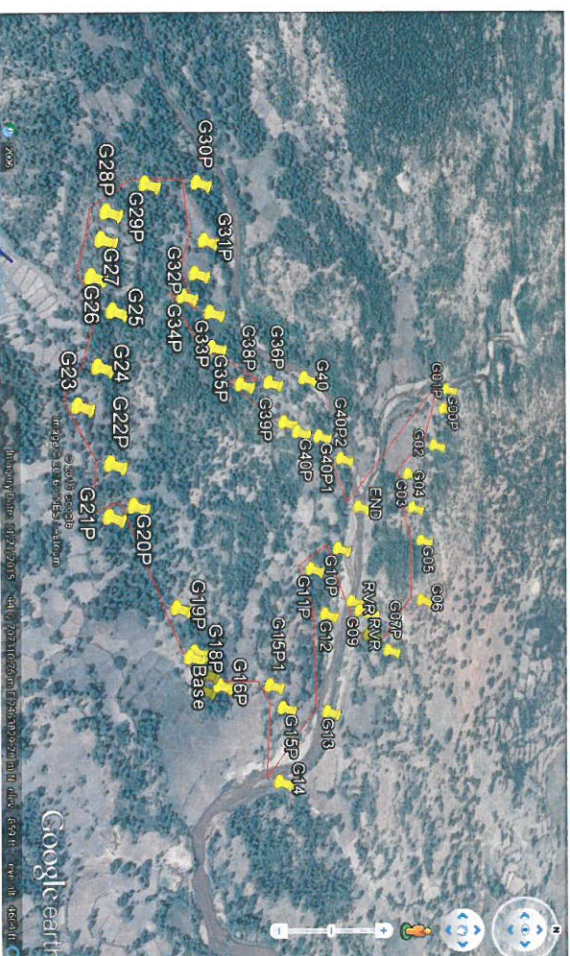
Survey Date

The Survey has been conducted on date 02.12.15 to 04.12.15. Weather was nice with clear Sun light at around 09.30 am. Survey marking has been done before itself so it was easy to get the location points.

Google Image of OA1465



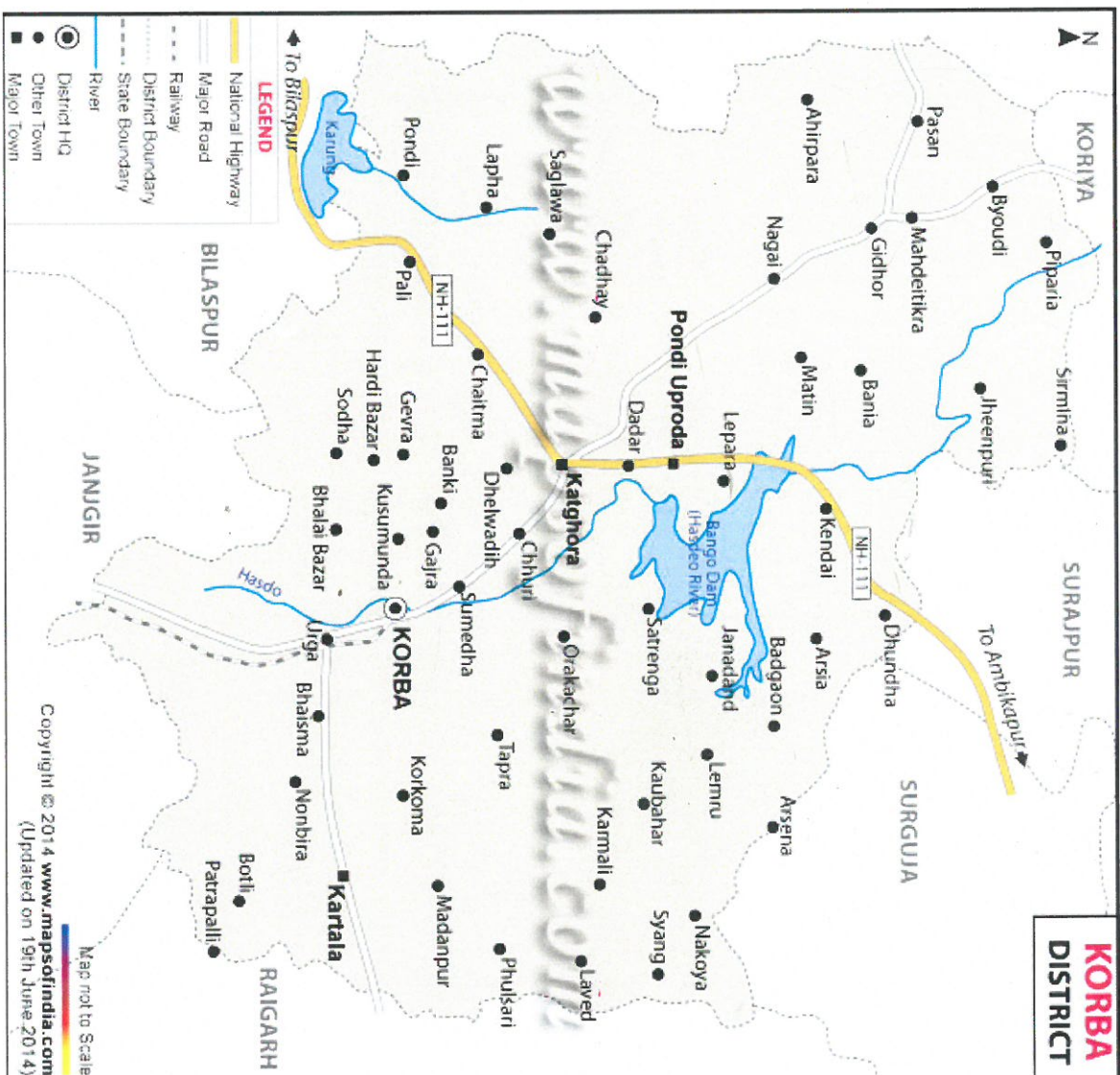
Google Image of OA1443





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Report On DGPS Survey Of Forest Stretches For 765KV D/C Jharsuguda-Dharamjaygarh (Korba) TL-2 CKT-3&4

The key map of the survey area is as under:



एम्. एच. सिद्दीकी / M. H. SIDDIQUI
वरिष्ठ अभियंता / SENIOR ENGINEER
पावरग्रिड, कोरबा / POWERGRID, KORBA



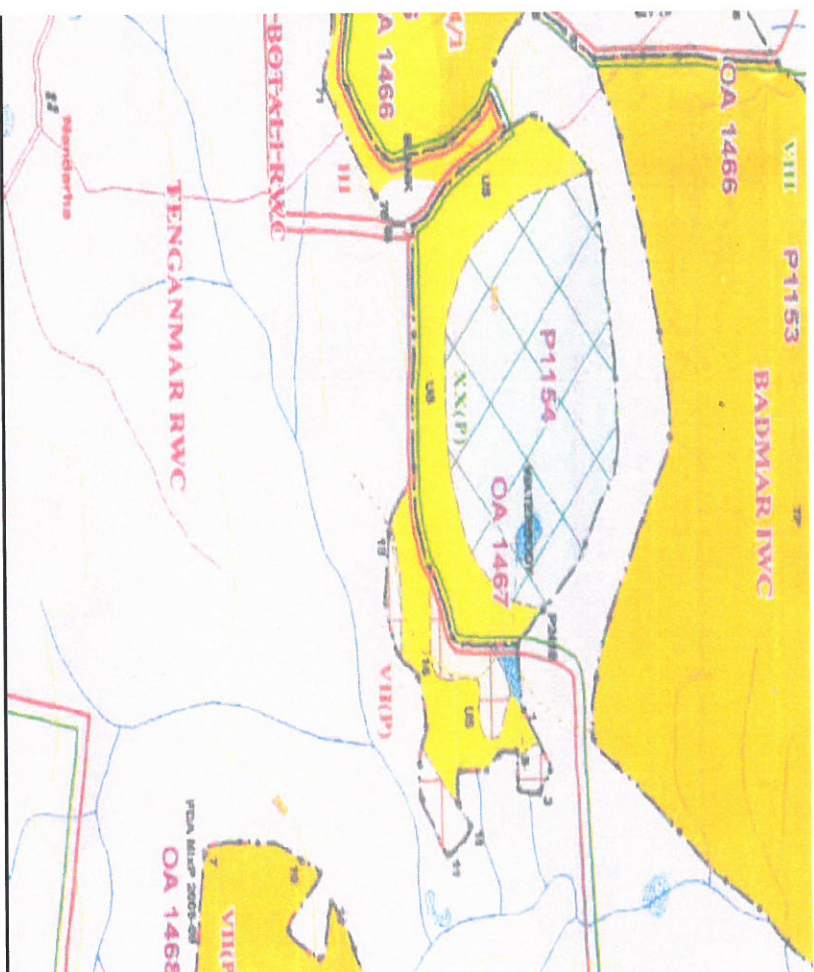
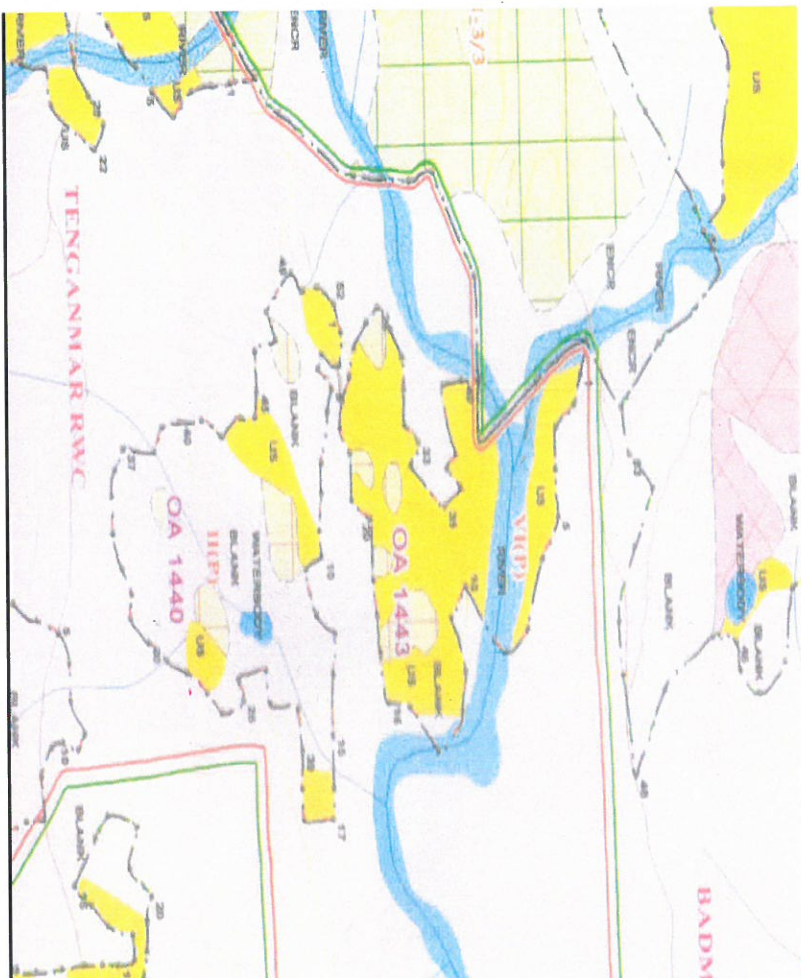
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Geo Reference Map



सं

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वरिष्ठ अभियंता / SENIOR ENGINEER
पारदर्शिता, कोरबा / POWERGRID, KORBA





ANNEXURE-A

LIST OF COORDINATES OF CA LAND BOUNDARY

SR. NO.	COMPARTMENT NO.	POINT NO.	EASTING	NORTHING
1	OA1465	1	707954.740	2457939.006
		2	706990.072	2457181.661
		3	706990.071	2457181.661
		4	707075.923	2457293.898
		5	707175.276	2457291.867
		6	707175.270	2457291.875
		7	707175.279	2457291.873
		8	707195.494	2457387.762
		9	707111.601	2457400.445
		10	707111.604	2457400.448
		11	707115.832	2457444.638
		12	707194.040	2457448.236
		13	707242.083	2457405.132
		14	707303.972	2457386.243
		15	707305.879	2457386.295
		16	707305.875	2457386.287
		17	707314.079	2457444.745
		18	707317.819	2457443.512
		19	707416.049	2457439.200
		20	707416.050	2457439.196
		21	707420.460	2457527.959
		22	707415.845	2457528.510
		23	707231.090	2457530.039
		24	707218.969	2457568.469
		25	707253.158	2457588.915
		26	707406.863	2457611.701
		27	707462.667	2457548.967
		28	707464.107	2457547.738
		29	707490.521	2457503.646
		30	707516.749	2457444.035
		31	707535.911	2457387.705
		32	707550.296	2457405.581
		33	707564.582	2457375.928
		34	707567.859	2457380.169
		35	707565.771	2457287.987
		36	707517.652	2457232.595



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	37	707574.817	2457199.615
	38	707571.832	2457216.987
	39	707566.787	2457218.178
	40	707446.608	2457164.114
	41	707385.881	2457130.021
	42	707345.847	2457086.034
	43	707362.291	2457084.384
	44	707364.279	2457101.009
	45	707354.870	2457093.554
	46	707347.324	2457102.787
	47	707316.192	2457126.863
	48	707314.289	2457127.689
	49	707304.811	2457132.248
	50	707202.489	2457152.780
	51	707180.393	2457142.233
	52	707166.419	2457133.862
	53	707099.762	2457097.307
	54	706998.772	2457138.417
	55	706997.295	2457119.363
	56	706988.527	2457129.805
	57	706979.709	2457139.855
	58	706978.276	2457120.774
	59	706884.040	2457103.049
	60	706883.790	2457134.353
	61	707274.423	2457192.632
	62	707436.037	2457183.145
2	1	707595.381	2463575.458
	2	707057.850	2464343.056
	3	707104.511	2464333.316
	4	707192.366	2464296.822
	5	707262.475	2464196.574
	6	707339.491	2464212.578
	7	707414.748	2464244.395
	8	707551.196	2464242.494
	9	707652.672	2464125.400
	10	707610.550	2464056.504
	11	707556.068	2464028.981
	12	707562.161	2464053.525
	13	707534.590	2464002.644
	14	707422.426	2463957.641
	15	707459.422	243875.601
	16	707553.102	2463918.147

DR. M. SIDDIQUI
CHIEF ENGINEER
POWERGRID, KORBA

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3	OA1467	17	707752.718	2463930.228
		18	707862.869	2463795.603
		19	707722.807	2463802.582
		20	707673.977	2463767.198
		21	707654.523	2463642.169
		22	707628.059	2463607.977
		23	707655.927	2463600.747
		24	707587.812	2463584.960
		25	707507.459	2463544.646
		26	707333.227	2463453.726
		27	707350.450	2463407.211
		28	707266.395	2463408.190
		29	707179.707	2463349.236
		30	707115.743	2463384.134
		31	707023.236	2463410.248
		32	706976.999	2463370.412
		33	706914.179	2463388.354
		34	706868.884	2463397.138
		35	706803.736	2463471.001
		36	706771.533	2463580.872
		37	706868.649	2463579.711
		38	2463577.851	2463577.851
		39	706992.480	2463612.220
		40	706974.604	2463551.699
		41	707053.387	2463617.923
		42	707101.509	2463757.929
		43	707082.738	2463854.332
		44	707112.554	2463684.566
		45	707173.785	2463797.349
		46	707189.687	2463835.917
		47	707194.051	2463897.766
		48	707236.415	2463965.107
		49	707336.407	2464022.195
		1	709497.386	2457977.375
		2	709496.617	2457980.243
		3	709501.831	2457976.225
		4	709494.416	2457975.452
		5	709258.238	2458052.518
		6	709282.510	2458054.357
		7	709312.465	2458053.927
		8	709361.381	2458053.203
		9	709387.802	2458054.142

POWERGRID CORPORATION OF INDIA LIMITED
Jharsuguda-Dharamjaygarh (Korba) TL-2 CKT-3&4
Report On DGPS Survey Of Forest Stretches For 765KV D/C Jharsuguda-Dharamjaygarh (Korba) TL-2 CKT-3&4



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	10	709436.001	2458058.210
	11	709509.549	2458072.076
	12	709563.735	2458081.232
	13	709596.319	2458084.634
	14	709655.275	2458091.743
	15	709679.685	2458091.972
	16	709701.564	2458097.694
	17	709738.266	2458115.045
	18	709777.628	2458138.847
	19	709802.534	2458164.863
	20	709822.972	2458185.756
	21	709838.811	2458203.073
	22	709835.516	2458197.436
	23	709836.990	2458216.732
	24	709832.417	2458249.923
	25	709828.622	2458281.561
	26	709826.677	2458326.823
	27	709824.175	2458401.032
	28	709931.850	2458475.473
	29	709986.737	2458581.735
	30	710037.256	2458564.936
	31	710085.662	2458452.104
	32	710023.666	2458380.435
	33	710056.614	2458335.111
	34	710144.447	2458292.783
	35	710113.756	2458241.662
	36	710196.479	2458188.784
	37	710136.461	2458143.900
	38	710036.068	2458140.412
	39	709955.424	2458119.462
	40	709842.715	2458106.924
	41	709789.332	2458058.481
	42	709799.877	2458027.148
	43	709712.973	2457992.161
	44	709565.649	2457994.514
	45	709424.960	2458008.768
	46	709313.622	2458009.139
	47	709257.877	2458058.310
	48	709244.720	2457920.914

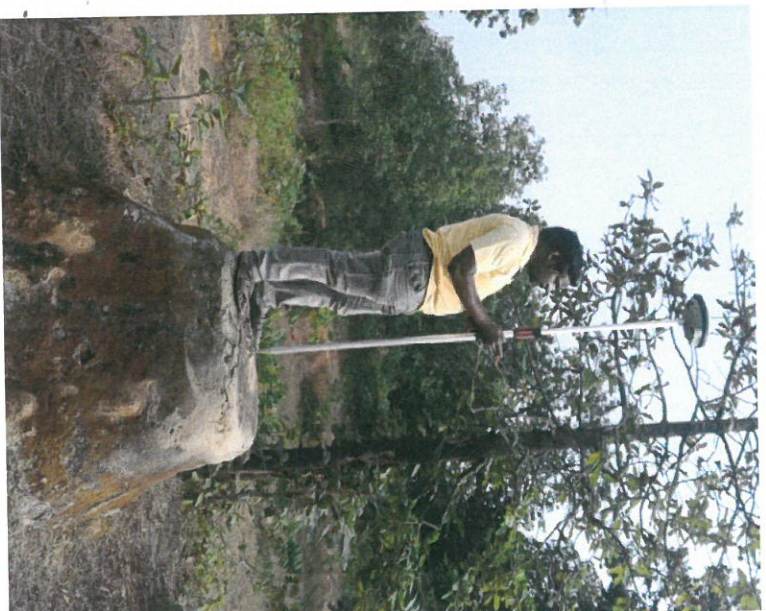
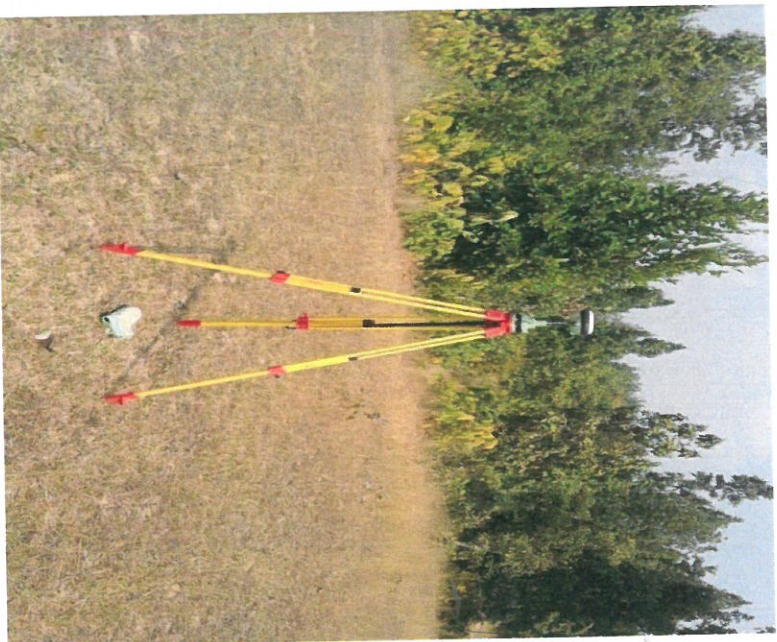
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Report On DGPS Survey Of Forest Stretches For 765KV D/C Jharsuguda-Dharamjaygarh (Korba) TL-2 CKT-3&4

POINT PHOTOGRAPHS

Compartment No. —OA1465



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वरिष्ठ अभियंता / SENIOR ENGINEER
पावरग्रिड, कोरबा / POWER GRID, KORBA

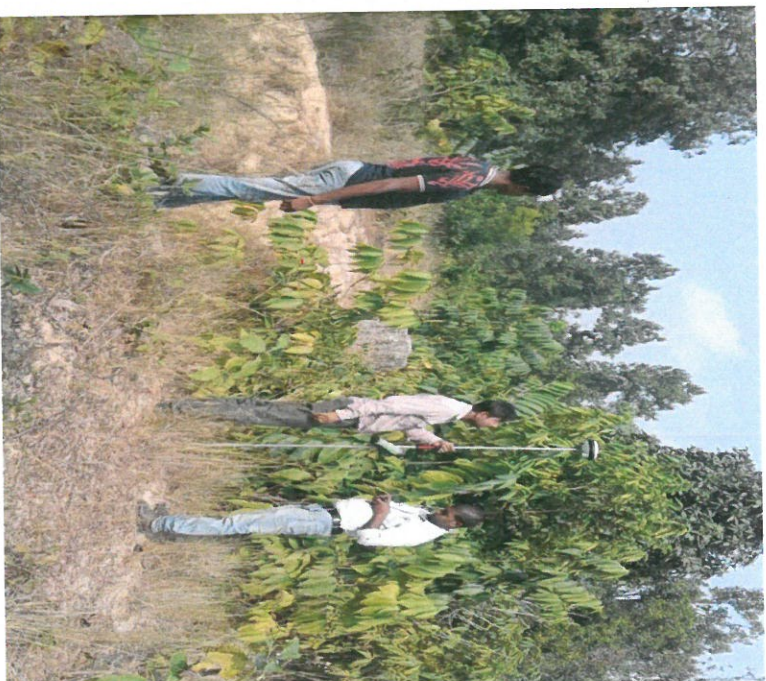
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Report On DGPS Survey Of Forest Stretches For 765KV D/C Jharsuguda-Dharamjaygarh (Korba) TL-2 CKT-3&4

POINT PHOTOGRAPHS

Compartment No. -OA1443



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Report On DGPS Survey Of Forest Stretches For 765KV D/C Jharsuguda-Dharamjaygarh (Korba) TL-2 CKT-3&4

POINT PHOTOGRAPHS

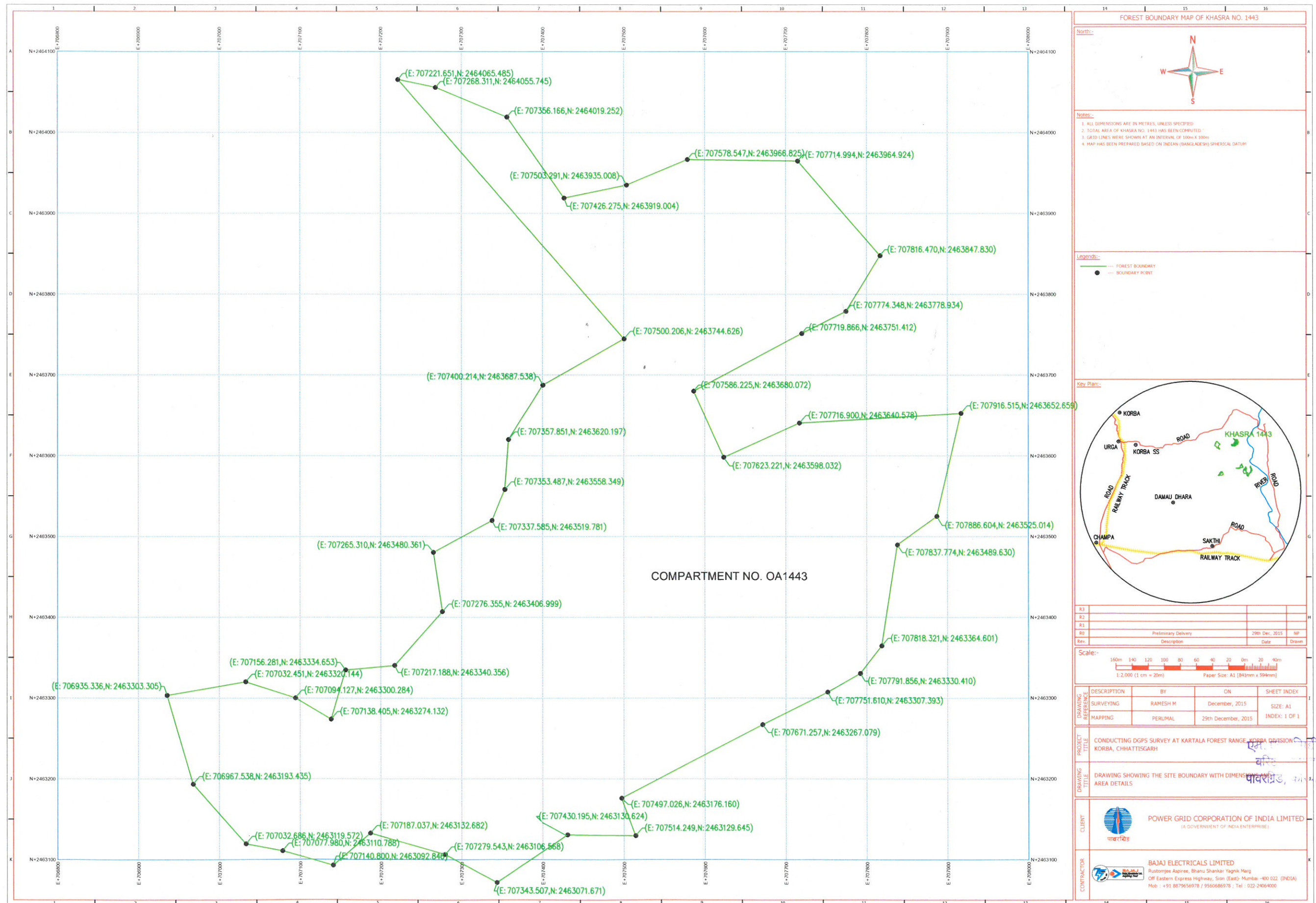
Compartment No. - 0A1467



ए.ए. सिद्दिकुली / M. H. SIDDIQUEE
वरिष्ठ आगंतुकी/SENIOR ENGINEER
पावरग्रिड, कोरबा/POWERGRID, KORBA

MNEC Consultants Pvt. Ltd.

DGPS Survey Of Compensatory Afforestation Land
for 765KV D/C (Hexa Zebra) Jharsuguda-Dharamjaygarh(Korba) Transimmsion Line-II (WR Portion) CKT 3&4
Compartment No.OA1443
Village Madwani Range Kartala
Forest Division Korba (CG)
Total Area =33.019 Ha Proposed Area For CA=26.742



FOREST BOUNDARY MAP OF KHASRA NO. 1443

North:

Notes:-
1. ALL DIMENSIONS ARE IN METRES, UNLESS SPECIFIED.
2. TOTAL AREA OF KHASRA NO. 1443 HAS BEEN COMPUTED.
3. GRID LINES WERE SHOWN AT AN INTERVAL OF 100m X 100m.
4. MAP HAS BEEN PREPARED BASED ON INDIAN (BANGALORE) SPHERICAL DATUM.

Legend:-
--- FOREST BOUNDARY
● BOUNDARY POINT

Key Plan:-

Rev.	Description	Date	Drawn
R3			
R2			
R1			
R0	Preliminary Delivery	29th Dec. 2015	NP

Scale:-
1:2,000 (1 cm = 20m)
Paper Size: A3 (841mm x 594mm)

DRAWING REFERENCE	DESCRIPTION	BY	ON	SHEET INDEX
SURVEYING		RAMESH M	December, 2015	SIZE: A1
MAPPING		PERUMAL	29th December, 2015	INDEX: 1 OF 1

PROJECT TITLE: CONDUCTING DGPS SURVEY AT KARTALA FOREST RANGE, KORBA DIVISION, KORBA, CHHATTISGARH

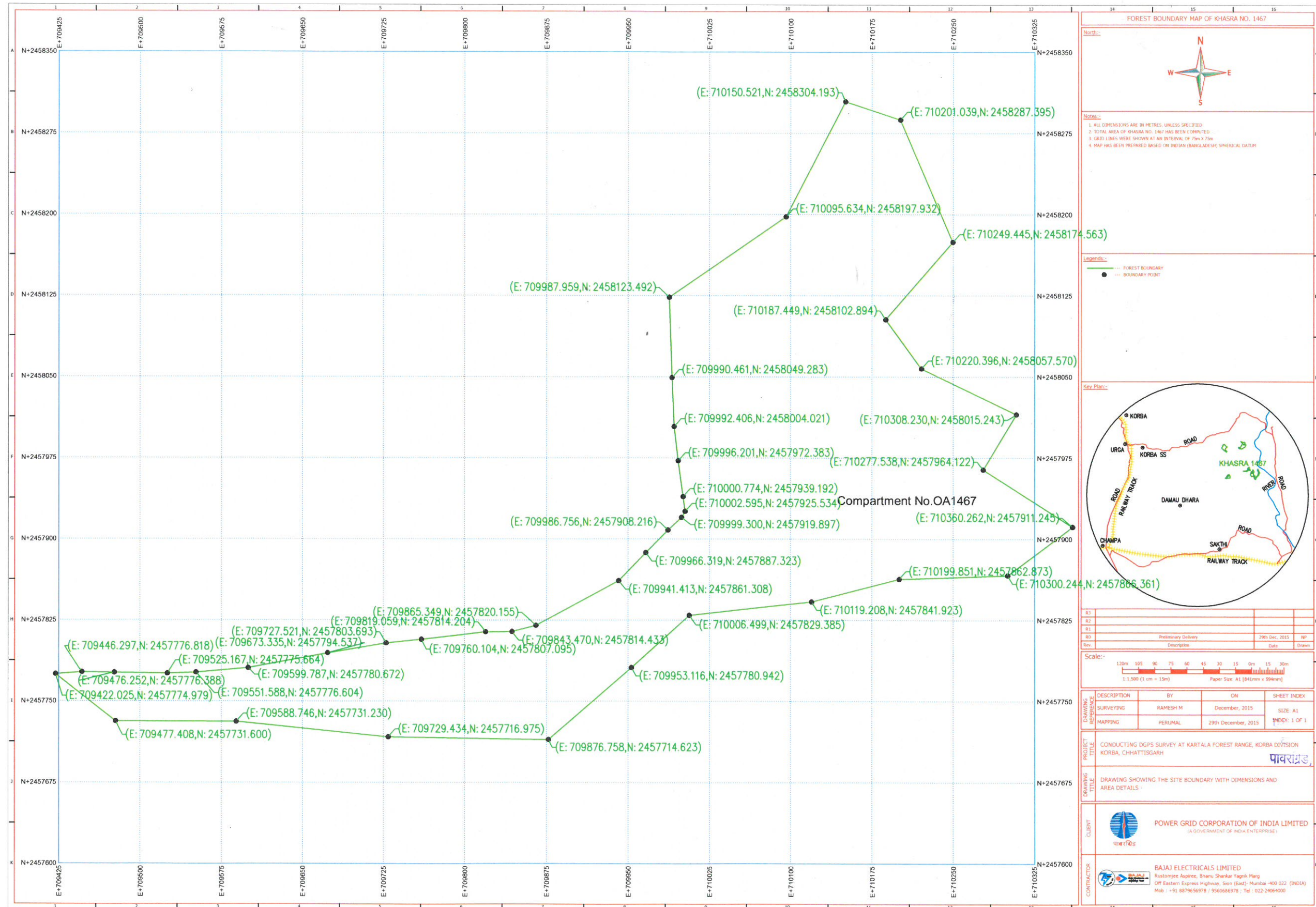
DRAWING TITLE: DRAWING SHOWING THE SITE BOUNDARY WITH DIMENSIONS AND AREA DETAILS

CLIENT: POWER GRID CORPORATION OF INDIA LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)

CONTRACTOR: BAJAJ ELECTRICALS LIMITED
Rustumjee Aspiree, Shahu Shankar Yagnik Marg
Off Eastern Express Highway, Son (East)- Mumbai -400 022 (INDIA)
Mob : +91 8879656978 / 9560686978 ; Tel : 022-24064000

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ENGINEER
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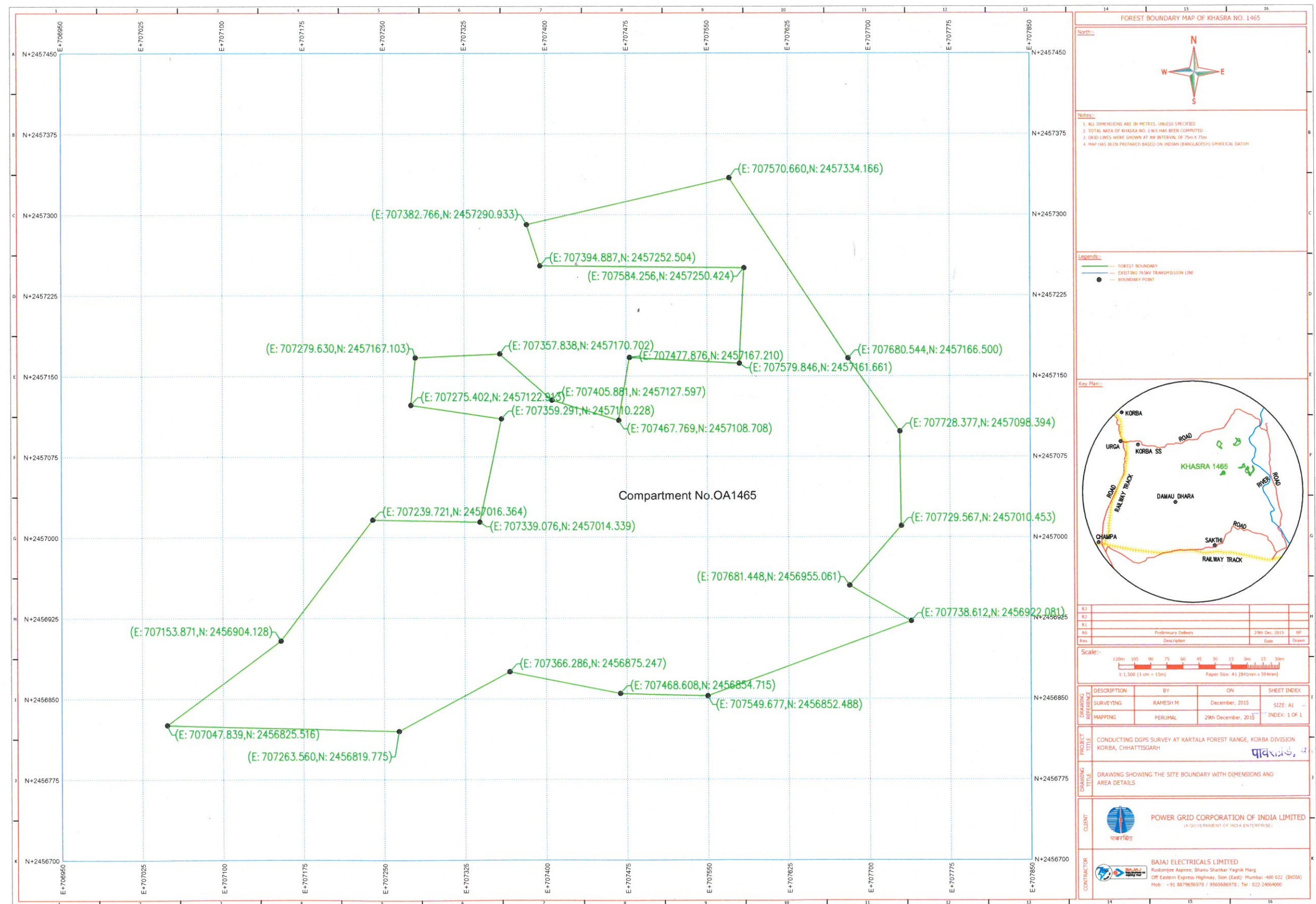
DGPS Survey Of Compensatory Afforestation Land
for 765KV D/C (Hexa Zebra) Jharsuguda-Dharamjaygarh(Korba) Transimmsion Line-II (WR Portion) CKT 3&4
Compartment No.OA1467
Village Nondarha Range Kartala
Forest Division Korba (CG)
Total Area =13.68 Ha Proposed Area For CA=13.68



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M. H. SIDDIQUI
SENIOR ENGINEER
POWERGRID, KORBA

DGPS Survey Of Compensatory Afforestation Land
for 765KV D/C (Hexa Zebra) Jharsuguda-Dharamjaygarh(Korba) Transimmsion Line-II (WR Portion) CKT 3&4
Compartment No.OA1465
Village Nondarha Range Kartala
Forest Division Korba (CG)
Total Area =12.736 Ha Proposed Area For CA=12.736



M. H. SIDDIQUI
JUNIOR ENGINEER
POWERGRID, KORBA