

JHARKHAND URJA SANCHRAN NIGAM LIMITED

DGPS REOPRT OF 132 KV D/C HUNTERGANJ-CHATRA TRANSMISSION LINE



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DGPS REPORT


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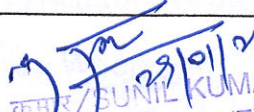
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 29/01/24
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Report or Preparation of Georeferenced Map for 132KV D/C Hunterganj- Chatra Transmission Line


1.0 Introduction

With the Introduction of Electricity Act 2003 Competition Was brought in to power sector and its sub sector power Generation Business was delicensed which led to huge capacity addition by the private sector and this warranted transmission network to be reinforced so that all the power generated could be supplied to the end users. The provisions for independent Transmission licenses were Created for Private Sector to get in to the Business.

JUSNL (Jharkhand Urja Sancharan Nigam Limited) is Primarily entrusted for the construction and successful operation of High Voltage Transmission line with a mission to from A Grid Network to Facilitate Effective transfer of Power Within state The Scheme is for construction of 132 KV D/C Hunterganj- Chatra Transmission Line. The Proposed Transmission line shall connect the proposed 132/33Kv Substation at Hunterganj (Village – Bonra) in Chatra District and Existing Chatra (Village- Darha) in Chatra District of Jharkhand State.

The line Traverses Through Hunterganj Block & Chatra Block/ circles in Chatra Districts. The Line Shall Be Utilized for Transfer the Power from 132/33 KV Chatra Subs station to 132/33 kv Hunterganj (Chatra) Substation.

The Line Shall Also be an Important link of chatra & Hunterganj in the District of Chatra. Therefore, the Power transmitted through this line will boost the Commercial, Domestic and Agriculture Growth of total Block of Chatra District as Well as Jharkhand State as a Whole.


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2.0 Background

The JUSNL invited Bid for Selection of Transmission Services provider to established the Transmission System for immediate Evacuation for the 132 KV D/C Hunterganj- Chatra project of JUSNL along with Creation of 132/33 kv substation at Hunterganj (Bonra) on Build own, Operate and maintain Basis and to provide transmission services on a long term Basis to the long Term Transmission customers. As part of said Project the Special Purpose Vehicle (SPV) is formed Jharkhand Urja Sanchran Nigam Limited to Develop the Proposed Project

SL NO	Scheme Transmission Work	Time Duration
1	132 KV D/C Hunterganj- Chatra	18 months
2	132 KV D/C Hunterganj - Itkhor	18 months
Creation of 132/33 kv substation at Hunterganj & Chatra		
Establishment of 132/33 kv substation Chatra	132/33 kv substation Hunterganj	18 months
<ul style="list-style-type: none"> • ICTs 50x2= 100MVA • ICTs Bays 2 no • Line Bays 4 no • Space for future bays 1 no • SF6 Ckt Breaker • CT,PT,OPGW 	<ul style="list-style-type: none"> • ICTs 50x2= 100MVA • ICTs Bays 2 no • Line Bays 4 nos • Space for future bays 1 no • SF6 Ckt Breaker • CT,PT,OPGW 	

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3.0 Location of Forest land for the Project

Location of forest land for 132KV D/C Hunterganj- Chatra Transmission Line in Chatra North & Chatra South Division of Chatra District.


4.0 Methodology

Execution of the Job was Planned on Basis of plan of the Area Provided by the Project. For the job DGPS (Differential Global Position System) survey was found to be appropriate for Determining Geographical coordinate of forest boundary

The Global Positioning System (GPS) is a satellite based location timing and navigation system in all Weather condition. Anywhere on or near the Earth where there is an unobstructed line of sight to 4 or more GPS satellite. presently, 30 orbiting satellites of GPS constellation USA and 24 GLONASS (Global Navigation Satellite System) satellite of Russia are operational for the purpose of GPS survey

The Global Positioning system is made up of three parts Satellite orbiting the Earth control and monitoring station on the Earth and the GPS Receiver owned by user. GPS satellite transmit three information – the satellite number, its position in space, and the time. These signal are picked by the GPS Receiver on ground. with signal from three or more satellite s a GPS receiver can triangular its location on the satellite with Four or more Satellite, a GPS receiver can determine a 3D position (i.e latitude, longitude, elevation)


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Differential Global Positioning System (DGPS) refer to using two or more GPS receivers to archives greater positional accuracy. Basic method of DGPS survey are satanic Rapid Static Real Time Kinematic(RTK)

For our job post processed static survey is found to be most suitable in static surveys one GPS receiver is used as base station and other GPS receiver can be used as Rover station. Base receiver Stationed at a point of known coordinate for longer Duration and the Rover station are kept at unknown station for comparatively shorter Duration data from the Base and Rover are then post processed in GPS data processing software to achieve sub- centimeter level accuracies, especially in case of dual Frequency GPS receivers


Arc GIS and AutoCAD software was found to be suitable for preparation of shapes file of the forest land in WGS-84 coordinate

The Shape file can be superimposed on Georeferenced cadastral maps or on satellite data. it will help in locating the forest Boundary or lease boundary on Global platform

5.0 survey Instrument

DGPS survey was carried out with high performance SOUTH S86 GPS system consisting of one base and three Rover station for Faster data acquisition having following board Specification

SL NO	DESCRIPTION	ACCURACY
1	make	SOUTH
2	Model	S86
3	Frequency	Dual
4	Constellation	Dual- GPS and GLONASS


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5	Accuracy in static mode Horizontal vertical	+ - 3mm +0.5ppm RMS + - 5mm +0.5 ppm RMS
6	Operating temperature	-30 to 60 Degree
7	Water Proof	As per IP67
8	Position update rate	10 Z

6.0 Computation


- (a) Data Recorded is Download from the GPS and processor in computer to get post processed WGS-84 coordinate of the surveyed station. The coordinate of other Boundary points are then transformed.
- (b) The WGS 84 Data of the point along the forest Boundary is then added in ARC-GIS & Auto Cad software and process to get shape file of the forest Boundary. The Raster Image of scanned plan showing Forest Boundary non Forest Boundary are also added in the ARC GIS software and then Geo Referenced W.r.t Salient point shape file of these Boundaries in also prepared
- (c) The Geographical coordinate along with forest Boundary is Tabulated in Table no -1


7.0 Document Submitted

- (a) DGPS Map
- (b) Topo sheet
- (c) Cadastral Map of Forest land (d) KML file of Forest Land

8.0 Name of Authenticating Agency for the Accuracy of the survey

Associated Power structures Pvt.ltd


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132 KV D/C HUNTERGANJ - CHATRA TRANSMISSION LINE

DGPS CORDINATE OF ANGLE POINT

SL NO.	NAME	NORTHING	EASTING	LATITUDE(N)	LONGITUDE(E)
1	BAY (Hunterganj)	2696911	276673	24°22'10.32"	84°47'53.98"
2	AP 1/0	2696882	276654	24°22'9.37"	84°47'53.32"
3	AP 2/0	2696715	276560	24°22'3.89"	84°47'50.08"
4	AP 3/0	2696015	275627	24°21'40.67"	84°47'17.38"
5	AP 4/0	2695623	275423	24°21'27.82"	84°47'10.37"
6	AP 5/0	2694873	275424	24°21'3.46"	84°47'10.83"
7	AP 6/0	2694484	275494	24°20'50.85"	84°47'13.53"
8	AP 7/0	2694282	275742	24°20'44.42"	84°47'22.44"
9	AP 8/0	2694116	275789	24°20'39.05"	84°47'24.2"
10	AP 9/0	2693524	275419	24°20'19.62"	84°47'11.41"
11	AP 10/0	2693289	275401	24°20'11.98"	84°47'10.91"
12	AP 11/0	2692679	274401	24°19'51.64"	84°46'35.79"
13	AP 12/0	2692444	274363	24°19'43.99"	84°46'34.58"
14	AP 13/0	2691569	274063	24°19'15.4"	84°46'24.44"
15	AP 14/0	2691339	274005	24°19'7.9"	84°46'22.51"
16	AP 15/0	2691068	273979	24°18'59.08"	84°46'21.74"
17	AP 16/0	2690735	274054	24°18'48.3"	84°46'24.59"
18	AP 17/0	2690456	274411	24°18'39.42"	84°46'37.41"
19	AP 18/0	2690067	274712	24°18'26.94"	84°46'48.3"
20	AP 19/0	2689550	274801	24°18'10.19"	84°46'51.74"
21	AP 20/0	2689079	275024	24°17'55"	84°46'59.92"
22	AP 21/0	2688559	275034	24°17'38.11"	84°47'0.56"
23	AP 22/0	2688059	274748	24°17'21.72"	84°46'50.71"
24	AP 23/0	2687768	274681	24°17'12.23"	84°46'48.5"

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SL NO.	NAME	NORTHING	EASTING	LATITUDE(N)	LONGITUDE(E)
25	AP 24/0	2687310	274866	24°16'57.44"	84°46'55.31"
26	AP 25/0	2686427	275867	24°16'29.27"	84°47'31.29"
27	AP 26/0	2686206	275970	24°16'22.14"	84°47'35.07"
28	AP 27/0	2685866	276352	24°16'11.29"	84°47'48.8"
29	AP 28/0	2685536	276472	24°16'0.63"	84°47'53.23"
30	AP 28/0	2685481	276803	24°15'59.01"	84°48'5"
31	AP 29/0	2685557	277080	24°16'1.63"	84°48'14.77"
32	AP 30/0	2685503	277377	24°16'0.02"	84°48'25.33"
33	AP 31/0	2685665	277609	24°16'5.41"	84°48'33.46"
34	AP 32/0	2685719	277853	24°16'7.28"	84°48'42.08"
35	AP 33/0	2685689	277981	24°16'6.37"	84°48'46.63"
36	AP 34/0	2685508	278031	24°16'0.52"	84°48'48.5"
37	AP 35/0	2685287	278313	24°15'53.48"	84°48'58.62"
38	AP 36/0	2685282	278471	24°15'53.4"	84°49'4.22"
39	AP 37/0	2685203	278658	24°15'50.93"	84°49'10.89"
40	AP 38/0	2685002	278742	24°15'44.44"	84°49'13.98"
41	AP 39/0	2684872	279007	24°15'40.35"	84°49'23.45"
42	AP 40/0	2684672	279134	24°15'33.92"	84°49'28.06"
43	AP 41/0	2684554	279320	24°15'30.18"	84°49'34.72"
44	AP 42/0	2684476	279587	24°15'27.78"	84°49'44.22"
45	AP 43/0	2684340	279862	24°15'23.5"	84°49'54.04"
46	AP 45/0	2684224	280176	24°15'19.89"	84°50'5.23"
47	AP 46/0	2684057	280412	24°15'14.58"	84°50'13.69"
48	AP 47/0	2683741	280585	24°15'4.4"	84°50'19.99"
49	AP 48/0	2683406	280724	24°14'53.59"	84°50'25.1"
50	AP 49/0	2683296	280808	24°14'50.05"	84°50'28.14"

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DGPS CORDINATE OF ANGLE POINT

SL NO.	NAME	NORTHING	EASTING	LATITUDE(N)	LONGITUDE(E)
51	AP 50/0	2683153	280920	24°14'45.46"	84°50'32.19"
52	AP 51/0	2682894	281116	24°14'37.15"	84°50'39.28"
53	AP 52/0	2682570	281320	24°14'26.72"	84°50'46.68"
54	AP 53/0	2682418	281525	24°14'21.89"	84°50'54.03"
55	AP 54/0	2682361	281660	24°14'20.1"	84°50'58.84"
56	AP 55/0	2682366	281845	24°14'20.36"	84°51'5.4"
57	AP 56/0	2682373	282007	24°14'20.67"	84°51'11.13"
58	AP 57/0	2682022	282314	24°14'9.41"	84°51'22.2"
59	AP 58/0	2681931	282554	24°14'6.58"	84°51'30.76"
60	AP 59/0	2681705	283294	24°13'59.6"	84°51'57.1"
61	AP 60/0	2681678	283691	24°13'58.92"	84°52'11.18"
62	AP 61/0	2681576	283875	24°13'55.7"	84°52'17.76"
63	AP 62/0	2681678	284398	24°13'59.27"	84°52'36.23"
64	AP 63/0	2681826	284528	24°14'4.15"	84°52'40.76"
65	AP 64/0	2681932	284761	24°14'7.7"	84°52'48.96"
66	AP 65/0	2682101	284799	24°14'13.21"	84°52'50.22"
67	AP 66/0	2682198	284713	24°14'16.32"	84°52'47.12"
68	AP 67/0	2682180	284542	24°14'15.65"	84°52'41.07"
69	AP 68/0	2682161	284492	24°14'15.01"	84°52'39.31"
70	BAY (Chatra)	2682134	284494	24°14'14.14"	84°52'39.39"

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