ALTERNATIVE ROAD FOR TRANSPORTATION OF IRON ORE

FOREST DIVISION NARAYANPUR
DISTRICT NARAYANPUR
CHHATTISGARH

D.G.P.S. SURVEY REPORT

PREPARED BY:

COMPUTER PLUS
SOFTWARE DEVELOPMENT & CONSULTANCY
Certified: ISO 9001:2015

www.cplus.in

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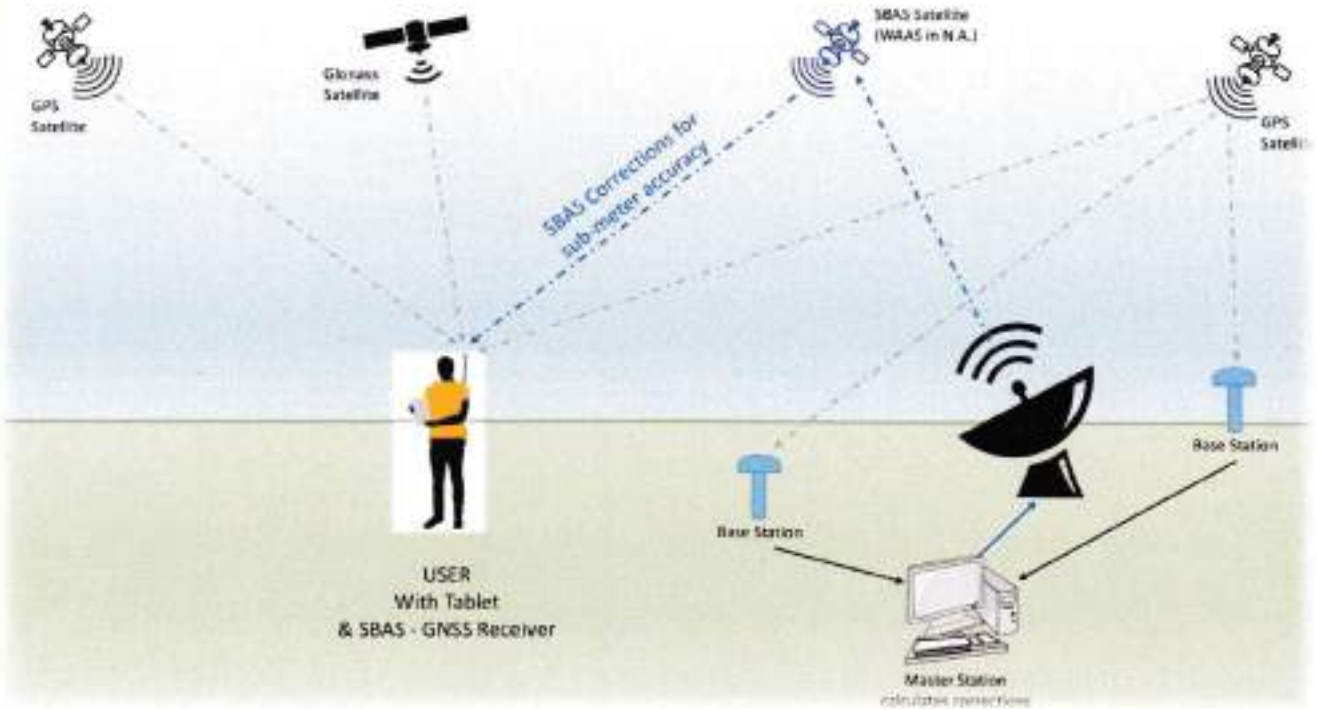

वनमण्डलाधिकारी
नारायणपुर व.मं.नारायणपुर

Submitted To

Jayaswal Neco Industries Limited,
Chhattisgarh.

Report prepared By

COMPUTER PLUS
Software Development &Consultancy
Devendra Nagar, Raipur, (C.G).

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MAPS ON A3 & A0 PAPER SIZE PRINTOUT

DATA ENCLOSED IN SOFT COPY

1. ABOUT US

Computer Plus an **ISO 9001:2015 certified** organization working in the field of I.T. Consulting & Software Services. We are registered organization under **Directorate of Geology and Mining, Chhattisgarh**. We are serving since 1998 & head office in Raipur, (C.G.), with core competence in the areas of Integrated Business Solutions with Implementation and Support.

Our Team:

We're justifiably proud of the team we've assembled. Initially numbering just two programmers, **Computer Plus** has grown steadily and now has over 250 staff members. The **Computer Plus** team is made up of highly-qualified, talented and innovative IT and GIS professionals each with their own area of expertise. Their experience spans the full range of custom software development, from small entrepreneurial projects to complex systems for major corporations.

Our Mission:

Computer Plus's mission is to solve challenging technical problems in partnership with our clients.
How we achieve it:

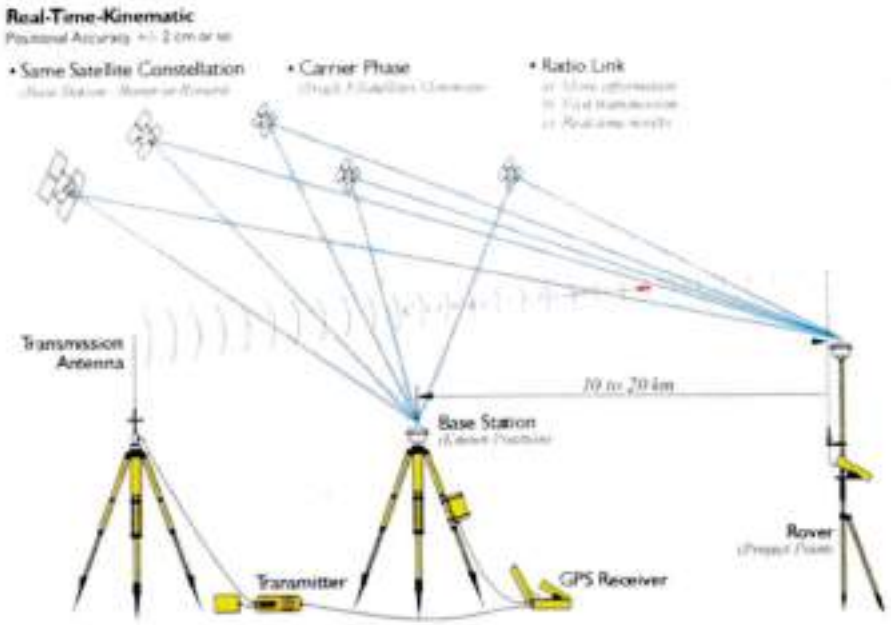
- We understand the business needs of our clients, and how technology can be a tool to make modern businesses more profitable for both private and government sector.
- **Computer Plus** combines technical excellence with great customer service and value for money.
- We value creativity and collaboration; ideas are shared and everybody contributes on an individual basis toward the common goal.

We create new teams for each project, ensuring the best possible combination of skills and experience to meet the client's needs and deliver high quality solutions.

SURVEY METHOD

1) RTK (Real Time Kinematic)

A. Real-time Kinematic



Most, not all, GPS surveying relies on the idea of differential positioning. The mode of a base or reference receiver at a known location logging data at the same time as a receiver at an unknown location together provide the fundamental information for the determination of accurate coordinates. While this basic approach remains today, the majority of GPS surveying is not done in the static post-processed mode. Post-processing is most often applied to control work. Now, the most commonly used methods utilize receivers on reference stations that provide correction signals to the end user via a data link sometimes over the Internet, radio signal, or cell phone and often in real-time.

In this category of GPS surveying work there is sometimes a distinction made between code- based and carrier-based solutions. In fact, most systems use a combination of code and carrier measurements so the distinction is more a matter of emphasis rather than an absolute difference. Well that's a bit of discussion about static surveying, but as you know, a good deal of GPS these days is done not static. Much work is now done with DGPS or real-time kinematic, RTK.

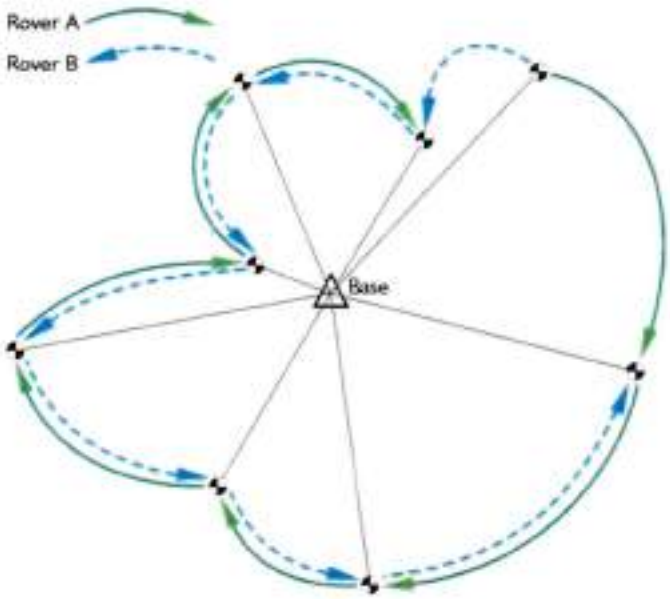
Errors in satellite clocks, imperfect orbits, the trip through the layers of the atmosphere, and many other sources contribute inaccuracies to GPS signals by the time they reach a receiver.

These errors are variable, so the best to way to correct them is to monitor them as they happen. A good way to do this is to set up a GPS receiver on a

station whose position is known exactly, a base station. This base station receiver's computer can calculate its position from satellite data, compare that position with its actual known position, and find the difference. The resulting error corrections can be communicated from the base to the rover. It works well, but the errors are constantly changing so a base station has to monitor them all the time, at least all the time the rover receiver or receivers are working. While this is happening, the rovers move from place to place collecting the points whose positions you want to know relative to the base station, which is the real objective after all. Then all you have to do is get those base station corrections and the rover's data together somehow. That combination can be done over a data link in real-time, or applied later in post processing.

Real-time positioning is built on the foundation of the idea that, with the important exceptions of multipath and receiver noise, GPS error sources are correlated. In other words, the closer the rover is to the base the more the errors at the ends of the baseline match. The shorter the baseline, the more the errors are correlated. The longer the baseline, the less the errors are correlated.

The base station is at a known point, whether it was on a building permanently or it's a tripod mounted base station. The fact that it is in a known position allows the base station to produce corrections. The constellation is telling the base station that it is in a slightly different place, so corrections can be created to send to the rover at the unknown point. The corrections are applied in real time.



RADIAL GPS

Such real-time surveying is essentially radial. There are advantages to the approach. The advantage is a large number of positions can be established in a short amount of time with little or no planning. The disadvantage is that there is little or no redundancy in positions derived, each of the baselines originates from the same control station. Redundancy can be incorporated, but it requires repetition of the observations so each baseline is determined with more than one GPS constellation. One way to do it is to occupy the

project points, the unknown positions, successively with more than one rover. It is best if these successive occupations are separated by at least 4 hours and not more than 8 hours so the satellite constellation can reach a significantly different configuration.

RTK and DGPS are radial. You have a known point in the middle, the base, and then the unknown points around it. This provides little geometric solidity. If there's an error in one of these radial base lines, it would be tough to catch it because there's no real redundancy. The illustration shows a way around this difficulty. There are two receivers, A and B, and it's possible by double occupation, one receiver going one way and the other going the other, by double occupying the unknown points to get some redundancy and some checks against the positions from a base. Another way to do it is to use one receiver. That receiver would occupy each point twice with four to eight hours between the first occupation and the second occupation on the point. Another way is to move the base to another known point. Then if you have vectors from another base into these points, you have a check. This approach allows a solution to be available from two separate control stations. Obviously, this can be done with re-occupation of the project points after one base station has been moved to a new control point, or two base stations can be up and running from the very outset and throughout of the work as would be the case using two CORS stations. It is best if there are both two occupations on each point and each of the two utilize different base stations.

A more convenient but less desirable approach is to do a second occupation almost immediately after the first. The roving receiver's antenna is blocked or tilted until the lock on the satellites is interrupted. It is then re-oriented on the unknown position a second time for the repeat solution. This does offer a second solution, but from virtually the same constellation.

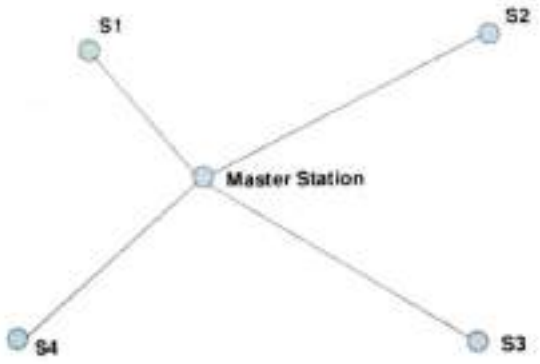
More efficiency can be achieved by adding additional roving receivers. However, as the number of receivers rises, the logistics become more complicated, and a survey plan becomes necessary. Also, project points that are simultaneously near one another but far from the control station should be directly connected with a baseline to maintain the integrity of the survey. Finally, if the base receiver loses lock and it goes unnoticed, it will completely defeat the radial survey for the time it is down.

These are a few possibilities to consider when you are doing a real-time survey.

An advantage to continuously operating reference station network is that since those bases are operating simultaneously and all the time, it's possible to download the positions from more than one base and process your new position based on these continuously operating reference stations and have some redundancy.

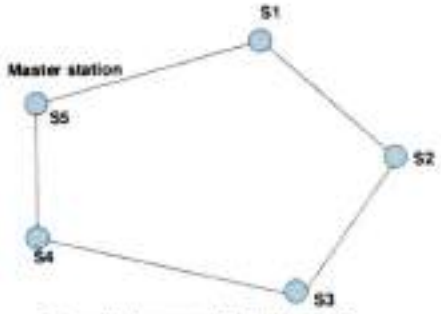
2) STATIC METHOD

I. Rapid Static Method



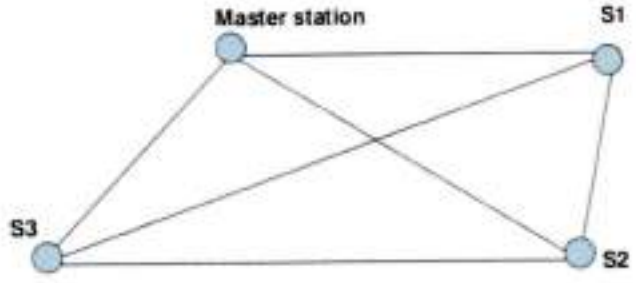
Schematic diagram of Rapid Static Method

II.Traverse Method



Schematic diagram of Traverse method

III. Trilateration Method

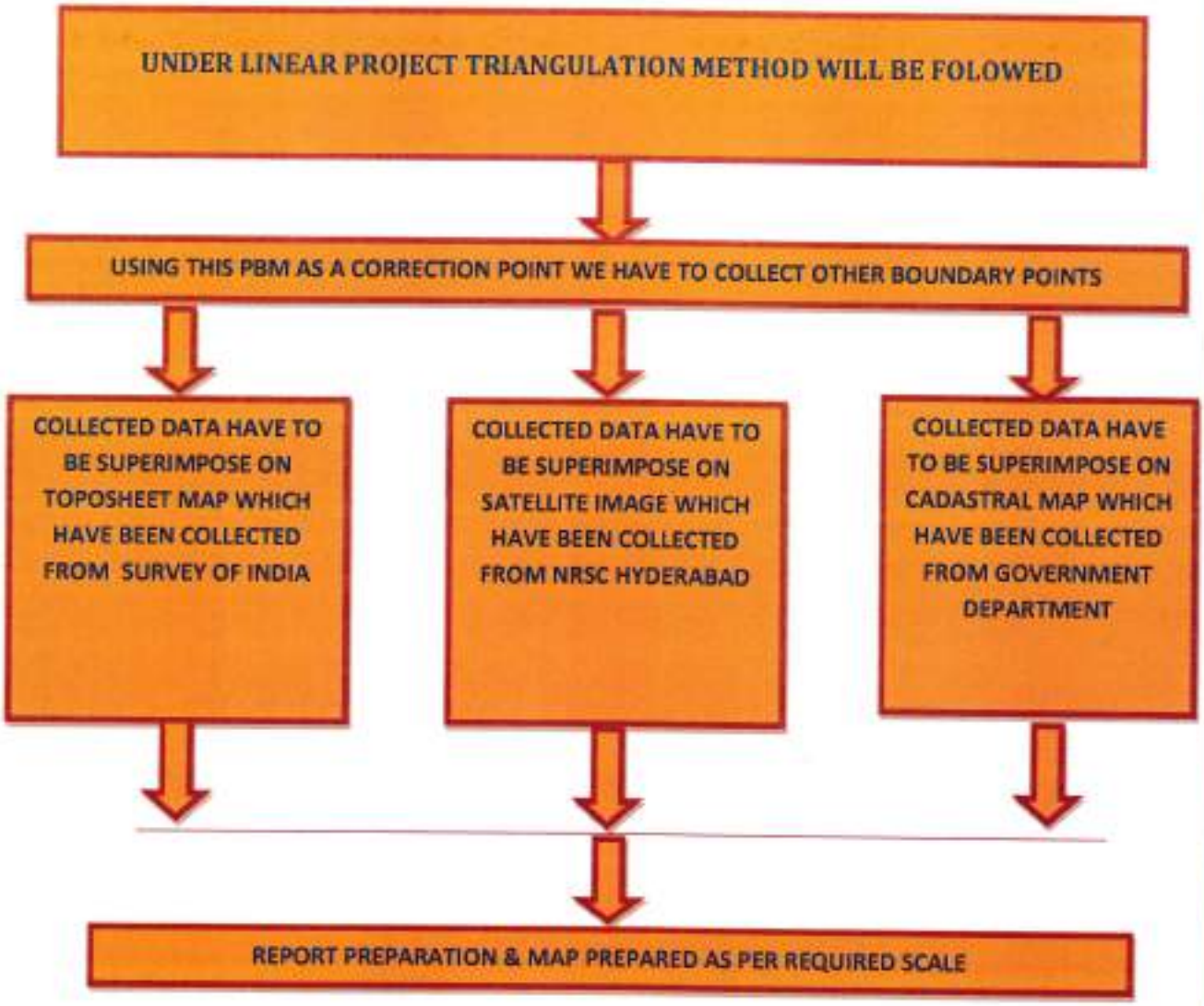


Trilateration method

3. METHODOLOGY USED

Following Methodology have been adopted for DGPS Survey of the proposed site.

SURVEY METHODLOGY UNDER LINEAR PROJECT



4. DETAILS OF SURVEYED SITE

The surveyed area for **Alternative Road For Transportation Of Iron Ore,** which comes under **Block Narayanpur, District Narayanpur and Chhattisgarh**.Tamnar Bus Station longitude latitude is **81°14'43.74"E 19°43'22.21"N.**Survey site is located **46.8 Km** from **Narayanpur Bus Station**. Survey site comes under **Forest Division Narayanpur, Forest Range Chhotedongar, Village Chhotedongar.**

It is covered in Survey of India Toposheet No. **65E7**.

Details of area surveyed and land details are given below:

AREA DETAILS & LAND CLASSIFICATION

S.No.	District Name	Division Name	Block Name	Village Name	Land Type	Compartment No.	Area (In Hectare)
1		Narayanpur		Chhotedongar	Reserve Forest	RF 2193	2.025
Total Area (In Hectare)							2.025

LAND SUMMARY

S.No.	Land Description	Width (In Meter)	Length (In Kilometer)	Area (In Hectare)
1	Reserve Forest	20	1.013	2.025
Total Area (In Hectare)				2.025

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5. CONTROL POINTS

Primary Control Point (Fixing of Base Station Point)

Details of primary control points used for fixing of Base Station Point are given below.

Primary Control Point (Fixing of Base Station Point)

Point ID	Geographical Coordinates		UTM Coordinates		
	Longitude	Latitude	Northing	Easting	Height
1	81° 17' 12.617" E	19° 26' 57.213" N	2150559.612000	530107.827000	747.0350
2	81° 17' 15.197" E	19° 26' 58.495" N	2150599.139000	530183.005000	742.0430

Surveyed Ground Control Points

S.No.	Point ID	Geographical Coordinates		UTM Coordinates	
		Longitude	Latitude	Easting	Northing
1	C1	81° 17' 7.158" E	19° 27' 9.633" N	529948.020000	2150941.095000
2	L1	81° 17' 6.852" E	19° 27' 9.780" N	529939.092966	2150945.601447
3	R1	81° 17' 7.463" E	19° 27' 9.486" N	529956.947034	2150936.588553
4	C2	81° 17' 7.933" E	19° 27' 11.084" N	529970.552237	2150985.730169
5	L2	81° 17' 7.618" E	19° 27' 11.213" N	529961.353722	2150989.698827
6	R2	81° 17' 8.234" E	19° 27' 10.928" N	529979.350368	2150980.968372
7	C3	81° 17' 8.708" E	19° 27' 12.535" N	529993.084474	2151030.365337
8	L3	81° 17' 8.396" E	19° 27' 12.671" N	529983.987382	2151034.534907
9	R3	81° 17' 9.018" E	19° 27' 12.395" N	530002.120864	2151026.075518
10	C4	81° 17' 9.314" E	19° 27' 13.668" N	530010.677237	2151065.215669
11	L4	81° 17' 9.007" E	19° 27' 13.814" N	530001.738818	2151069.699561
12	R4	81° 17' 9.609" E	19° 27' 13.500" N	530019.287392	2151060.081500
13	C5	81° 17' 9.919" E	19° 27' 14.800" N	530028.270000	2151100.066000
14	L5	81° 17' 9.549" E	19° 27' 14.827" N	530017.467356	2151100.856963
15	R5	81° 17' 10.258" E	19° 27' 14.751" N	530038.154750	2151098.552156
16	C6	81° 17' 9.509" E	19° 27' 15.974" N	530016.270000	2151136.119000
17	L6	81° 17' 9.172" E	19° 27' 15.918" N	530006.421922	2151134.382518
18	R6	81° 17' 9.852" E	19° 27' 16.027" N	530026.264039	2151137.757421
19	C7	81° 17' 9.429" E	19° 27' 17.599" N	530013.846434	2151186.060229
20	L7	81° 17' 9.085" E	19° 27' 17.608" N	530003.822609	2151186.308686
21	R7	81° 17' 9.772" E	19° 27' 17.604" N	530023.850544	2151186.218034
22	C8	81° 17' 9.384" E	19° 27' 19.225" N	530012.442155	2151236.029086
23	L8	81° 17' 9.041" E	19° 27' 19.225" N	530002.434799	2151236.016249
24	R8	81° 17' 9.728" E	19° 27' 19.211" N	530022.465779	2151235.631816
25	C9	81° 17' 9.337" E	19° 27' 20.388" N	530011.023548	2151271.790030
26	L9	81° 17' 8.995" E	19° 27' 20.375" N	530001.032513	2151271.374794

S.No.	Point ID	Geographical Coordinates		UTM Coordinates	
		Longitude	Latitude	Easting	Northing
27	R9	81° 17' 9.680" E	19° 27' 20.407" N	530021.007968	2151272.381027
28	C10	81° 17' 9.301" E	19° 27' 21.552" N	530009.900000	2151307.560000
29	L10	81° 17' 8.992" E	19° 27' 21.695" N	530000.904404	2151311.927875
30	R10	81° 17' 9.648" E	19° 27' 21.361" N	530020.028154	2151301.710199
31	C11	81° 17' 9.891" E	19° 27' 21.858" N	530027.090000	2151316.990000
32	L11	81° 17' 9.826" E	19° 27' 22.177" N	530025.188661	2151326.807582
33	R11	81° 17' 9.984" E	19° 27' 21.535" N	530029.820498	2151307.082032
34	C12	81° 17' 10.647" E	19° 27' 21.911" N	530049.120000	2151318.650000
35	L12	81° 17' 10.643" E	19° 27' 22.236" N	530049.004430	2151328.649332
36	R12	81° 17' 10.596" E	19° 27' 21.573" N	530047.670008	2151308.280221
37	C13	81° 17' 11.540" E	19° 27' 21.510" N	530075.190000	2151306.380000
38	L13	81° 17' 11.735" E	19° 27' 21.778" N	530080.847100	2151314.626043
39	R13	81° 17' 11.317" E	19° 27' 21.250" N	530068.697252	2151298.383624
40	C14	81° 17' 12.028" E	19° 27' 20.894" N	530089.460000	2151287.480000
41	L14	81° 17' 12.295" E	19° 27' 21.100" N	530097.208085	2151293.813736
42	R14	81° 17' 11.771" E	19° 27' 20.679" N	530081.967594	2151280.857020
43	C15	81° 17' 12.409" E	19° 27' 20.479" N	530100.580000	2151274.720000
44	L15	81° 17' 12.671" E	19° 27' 20.689" N	530108.199519	2151281.196028
45	R15	81° 17' 12.134" E	19° 27' 20.283" N	530092.573084	2151268.693367
46	C16	81° 17' 13.101" E	19° 27' 19.449" N	530120.820000	2151243.110000
47	L16	81° 17' 13.391" E	19° 27' 19.624" N	530129.243494	2151248.499317
48	R16	81° 17' 12.797" E	19° 27' 19.297" N	530111.945429	2151238.425714
49	C17	81° 17' 13.281" E	19° 27' 19.046" N	530126.090000	2151230.720000
50	L17	81° 17' 13.597" E	19° 27' 19.173" N	530135.292173	2151234.634080
51	R17	81° 17' 12.954" E	19° 27' 18.945" N	530116.549179	2151227.602099
52	C18	81° 17' 13.566" E	19° 27' 17.946" N	530134.454097	2151196.944808
53	L18	81° 17' 13.899" E	19° 27' 18.025" N	530144.157321	2151199.379113
54	R18	81° 17' 13.238" E	19° 27' 17.853" N	530124.881561	2151194.045206
55	C19	81° 17' 13.890" E	19° 27' 16.857" N	530143.930000	2151163.460000
56	L19	81° 17' 14.232" E	19° 27' 16.879" N	530153.904465	2151164.174173
57	R19	81° 17' 13.550" E	19° 27' 16.800" N	530134.029339	2151161.715044
58	C20	81° 17' 13.970" E	19° 27' 15.759" N	530146.345000	2151129.731000
59	L20	81° 17' 14.315" E	19° 27' 15.750" N	530156.388622	2151129.479299
60	R20	81° 17' 13.629" E	19° 27' 15.730" N	530136.385729	2151128.804616
61	C21	81° 17' 14.051" E	19° 27' 14.662" N	530148.760000	2151096.002000
62	L21	81° 17' 14.394" E	19° 27' 14.661" N	530158.760000	2151096.002000
63	R21	81° 17' 13.707" E	19° 27' 14.674" N	530138.708987	2151096.356924
64	C22	81° 17' 13.941" E	19° 27' 13.939" N	530145.580000	2151073.770000
65	L22	81° 17' 14.299" E	19° 27' 14.011" N	530156.002033	2151076.008951
66	R22	81° 17' 13.601" E	19° 27' 13.893" N	530135.679065	2151072.365903
67	C23	81° 17' 14.662" E	19° 27' 12.858" N	530166.646208	2151040.593439
68	L23	81° 17' 14.935" E	19° 27' 13.056" N	530174.603959	2151046.684781
69	R23	81° 17' 14.361" E	19° 27' 12.699" N	530157.898499	2151035.687496
70	C24	81° 17' 15.407" E	19° 27' 11.793" N	530188.440000	2151007.890000
71	L24	81° 17' 15.713" E	19° 27' 11.940" N	530197.354620	2151012.420954

S.No.	Point ID	Geographical Coordinates		UTM Coordinates	
		Longitude	Latitude	Easting	Northing
72	R24	81° 17' 15.110" E	19° 27' 11.629" N	530179.792080	2151002.834315
73	C25	81° 17' 15.828" E	19° 27' 11.005" N	530200.745000	2150983.680000
74	L25	81° 17' 16.136" E	19° 27' 11.147" N	530209.733024	2150988.066533
75	R25	81° 17' 15.518" E	19° 27' 10.864" N	530191.732153	2150979.342305
76	C26	81° 17' 16.249" E	19° 27' 10.216" N	530213.050000	2150959.470000
77	L26	81° 17' 16.572" E	19° 27' 10.324" N	530222.478432	2150962.801026
78	R26	81° 17' 15.932" E	19° 27' 10.090" N	530203.817502	2150955.564469
79	C27	81° 17' 16.573" E	19° 27' 9.312" N	530222.570000	2150931.690000
80	L27	81° 17' 16.885" E	19° 27' 9.453" N	530231.649820	2150936.041058
81	R27	81° 17' 16.283" E	19° 27' 9.139" N	530214.116577	2150926.347750
82	C28	81° 17' 16.899" E	19° 27' 8.821" N	530232.100000	2150916.610000
83	L28	81° 17' 17.178" E	19° 27' 9.012" N	530240.202720	2150922.507193
84	R28	81° 17' 16.609" E	19° 27' 8.648" N	530223.646577	2150911.267750
85	C29	81° 17' 17.579" E	19° 27' 8.045" N	530251.940000	2150892.800000
86	L29	81° 17' 17.887" E	19° 27' 8.186" N	530260.941315	2150897.156183
87	R29	81° 17' 17.288" E	19° 27' 7.868" N	530243.472730	2150887.340304
88	C30	81° 17' 18.000" E	19° 27' 7.204" N	530264.281769	2150866.952697
89	L30	81° 17' 18.309" E	19° 27' 7.353" N	530273.269284	2150871.547478
90	R30	81° 17' 17.700" E	19° 27' 7.031" N	530255.547114	2150861.631961
91	C31	81° 17' 18.360" E	19° 27' 6.221" N	530274.817953	2150836.759586
92	L31	81° 17' 18.693" E	19° 27' 6.301" N	530284.537132	2150839.258938
93	R31	81° 17' 18.034" E	19° 27' 6.120" N	530265.309435	2150833.656477
94	C32	81° 17' 18.690" E	19° 27' 5.229" N	530284.490000	2150806.280000
95	L32	81° 17' 19.017" E	19° 27' 5.326" N	530294.030021	2150809.277998
96	R32	81° 17' 18.363" E	19° 27' 5.132" N	530274.949979	2150803.282002

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Computer Plus Raipur (C.G.)

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6. SURVEY DATE

Survey Date	Observation	Survey Time
04/04/2022	Base Observation	11:00 AM To 01.02 PM
04/04/2022 To 05/04/2022	Pillar Survey	10:00 AM To 05:00 PM

Weather was pleasant with clear sun light. Survey point marking and temporary pillar posting has been done by a team of **Computer Plus.** Comprising of following members:

1. Mr. Surendra Pratap Singh
2. Mr. Mansingh Baghel
3. Mr. Narendra Markandey

The team was headed by **Mr. Surendra Pratap Singh** and Report is prepared by **Mr. Manish Kumar**.

➢ Base Station Photographs

➢ Survey with staff Photographs

कार्यालय वनमण्डलाधिकारी, नारायणपुर वनमण्डल, नारायणपुर

Phone/Fax No. 07781-252228 (O), 252232 (R), E-mail - dfonpur1@gmail.com/ dfo-narayanpur.cg@gov.in

—:: कार्यालयीन टीप पत्र ::—

व0मं0अ0 महोदय को प्रस्तुतः—

दिनांक ...../05/2022

विषय :— **जिला नारायणपुर के नारायणपुर वनमण्डल अंतर्गत वन परिक्षेत्र छोटेडोंगर के आरक्षित वन कक्ष क्रमांक 2193 के रकबा लगभग 3.6 हेक्टेयर क्षेत्र पर पहुँच मार्ग के निर्माण हेतु क्षेत्र का डी.जी.पी.एस. सर्वे सीमांकन प्रतिवेदन के संबंध में।**

संदर्भ :— मेसर्स जयसावल निको इण्डस्ट्रीज लिमिटेड सिलतरा रायपुर का पत्र क्रमांक/जेएनआईएल/छोटेडोंगर/2022/635 दिनांक 26.04.2022.

—:00:—

महोदय,

विषयांतर्गत निवेदन है, कि संदर्भित पत्र के द्वारा मेसर्स जायसवाल निको इण्डस्ट्रीज लिमिटेड सिलतरा रायपुर के द्वारा वन संरक्षण अधिनियम 1980 के तहत् पंजीयन करने हेतु खनिपट्टा स्वीकृत क्षेत्र में आवागमन हेतु पहुँच मार्ग के निर्माण हेतु वन भूमि क्षेत्र का डी.जी. पी.एस. सर्वे रिपोर्ट सत्यापन हेतु इस कार्यालय को प्रस्तुत किया गया है।

अतःमहोदय मान्य हो तो आवेदक संस्थान मेसर्स जायसवाल निको इण्डस्ट्रीज लिमिटेड सिलतरा रायपुर द्वारा 2.025 हे. स्वीकृत क्षेत्र में आवागमन हेतु पहुँच मार्ग के निर्माण हेतु डी.जी.पी.एस सर्वे रिपोर्ट 06 प्रतियों में सत्यापन हेतु सादर प्रस्तुत हैः—

निर्देशार्थ

व0म0अ0 | मु0लि0 | शाखा प्रभारी मा.चि