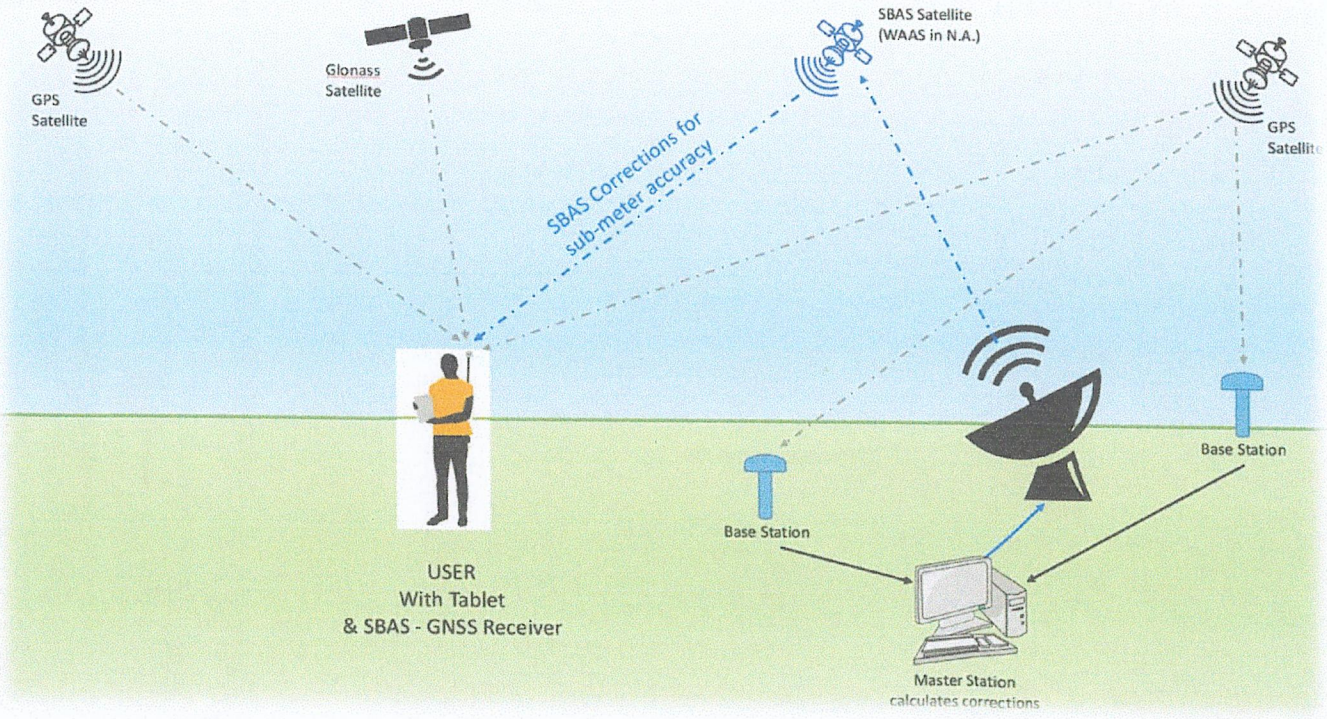
D.G.P.S. SURVEY REPORT

In Km 25.530 to 31.540 – 6.010 Km (KANGER VALLEY) ON NH - 30 (OLD NH - 221) JAGDALPUR-SUKMA-KONTA ROAD

FOREST DIVISION KANGERGHATI
NATIONAL PARK JAGDALPUR
DISTRICT BASTAR
CHHATTISGARH



Name of the Applicant:

Executive Engineer
P.W.D National Highway
Division Sukma

EXECUTIVE ENGINEER
NATIONAL HIGHWAY DIVISION
S-U-KMA

Director
Kanger Valley National Park
JAGDALPUR
Bastar

Computer Plus
Raipur (C.G.)

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MAPS ON A3 SIZE PRINTOUT

DATA ENCLOSED IN SOFT COPY

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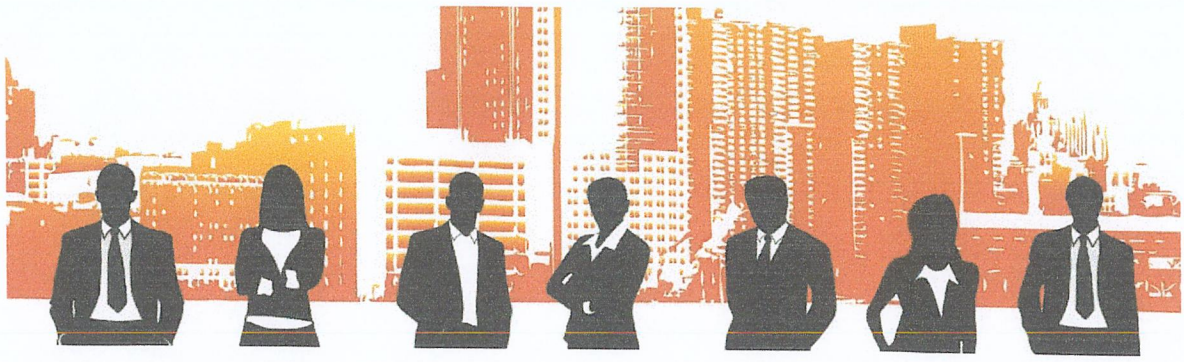

1. ABOUT US

Computer Plus an **ISO 9001:2008 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.

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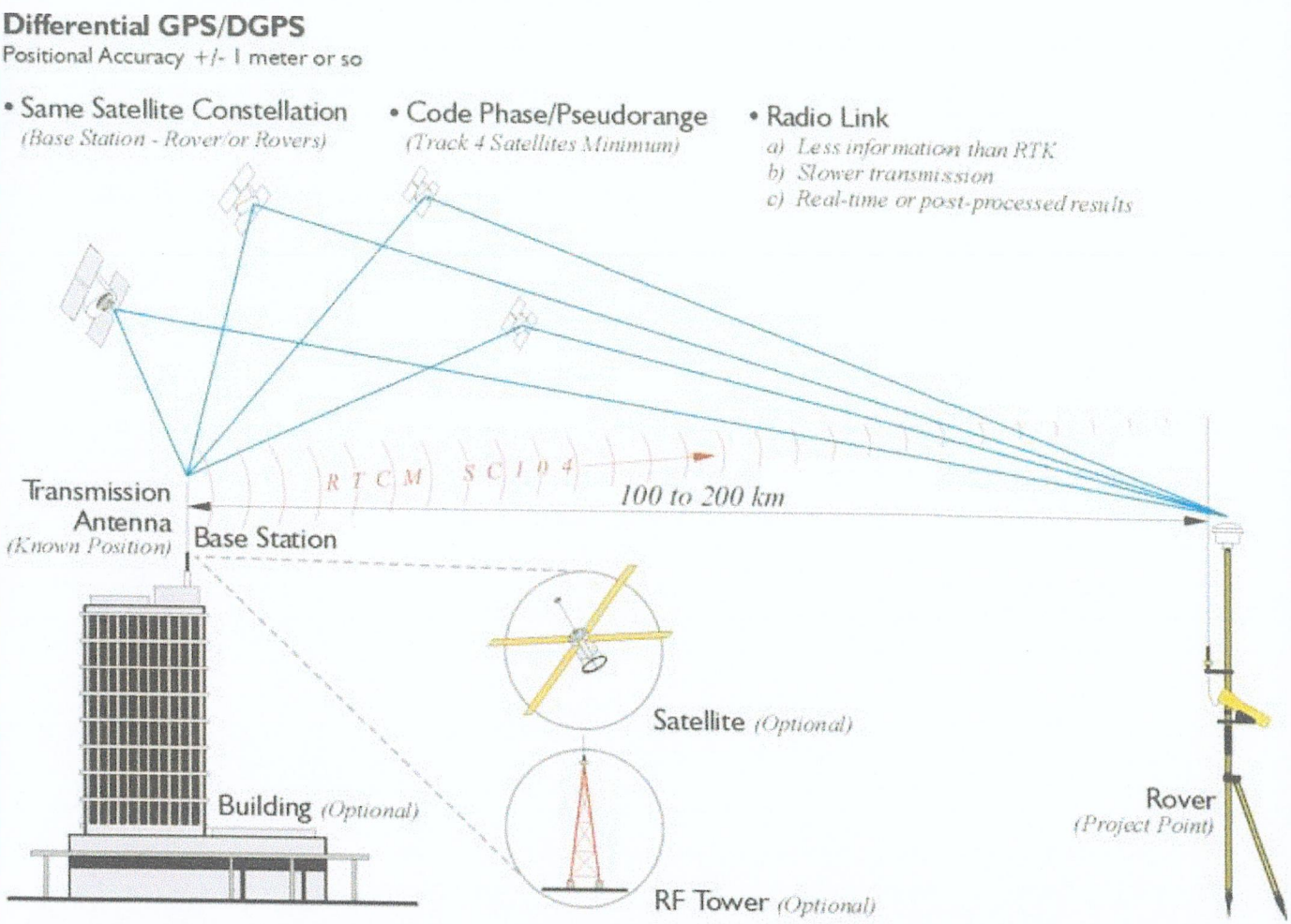
2. INTRODUCTION TO DGPS



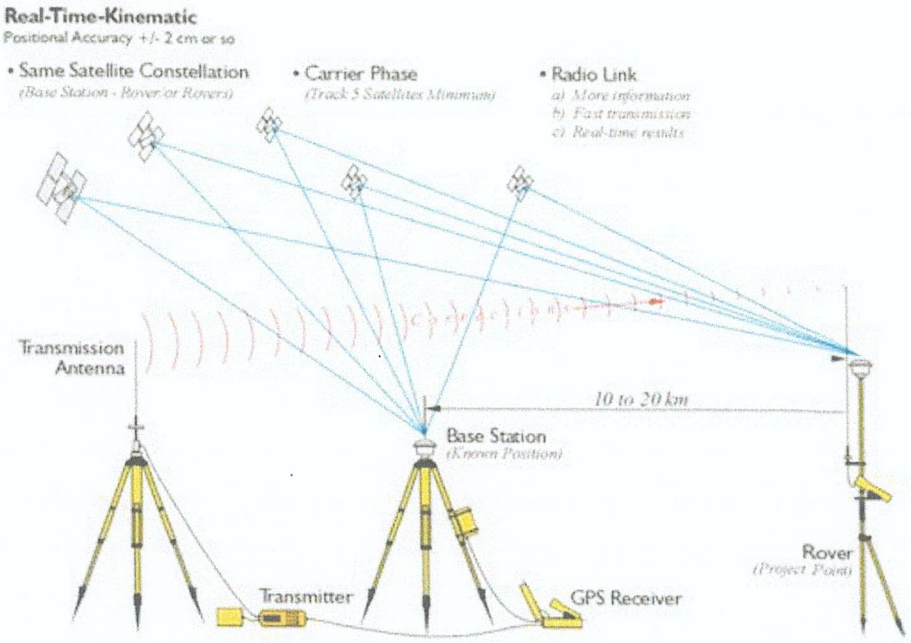
The term DGPS is sometimes used to refer to differential GPS that is based on pseudo ranges, aka code phase. Even though the accuracy of code phase applications was given a boost with the elimination of Selective Availability (SA) in May 2000 consistent accuracy better than the 2-5 meter range still requires reduction of the effect of correlated ephemeris and atmospheric errors by differential corrections. Though the corrections could be applied in post-processing services that supply these corrections, most often operate in real-time. In such an operation pseudo range based versions can offer meter- or even sub meter results.

Usually, pseudo range corrections are broadcast from the base to the rover or rovers for each satellite in the visible constellation. Rovers with an appropriate input/output (I/O) port can receive the correction signal and calculate coordinates. The real-time signal comes to the receiver over a data link. It can originate at a project specific base station or it can come to the user through a service of which there are various categories. Some are open to all users and some are by subscription only. Coverage depends on the spacing of the beacons, aka transmitting base stations, their power, interference, and so forth. Some systems require two-way, some one-way, communication with the base stations. Radio systems, geostationary satellites, low-earth-orbiting.

SURVEY METHOD

1 RTK (Real Time Kinematic)
2 STATIC METHOD

1 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.

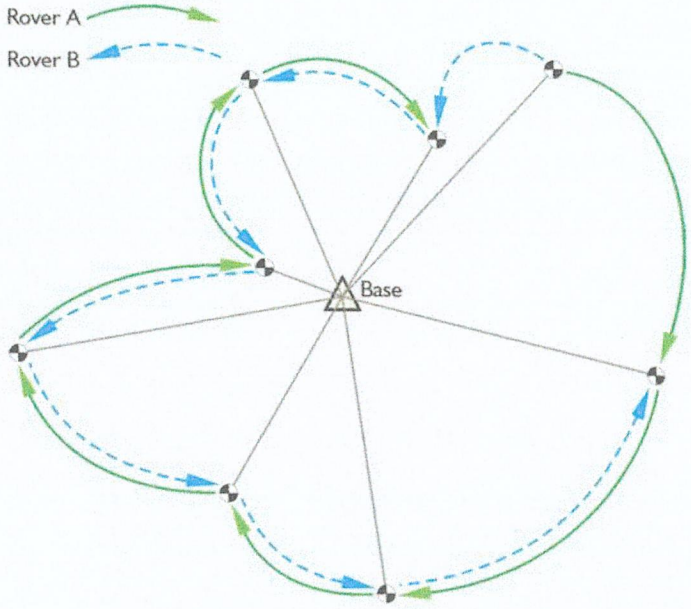
Errors in satellite clocks, imperfect orbits, the trip through the layers of the atmosphere, and many other sources contribute inaccuracies to GPS signals by the time they reach a receiver.

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 sent 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 points 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 a 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.

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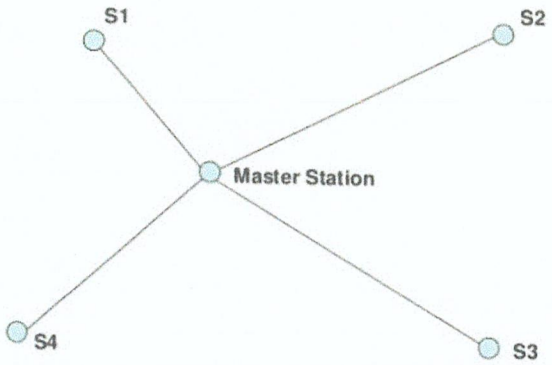
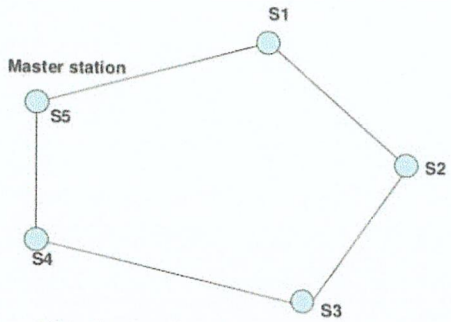
2. STATIC METHOD

I. Rapid Static Method



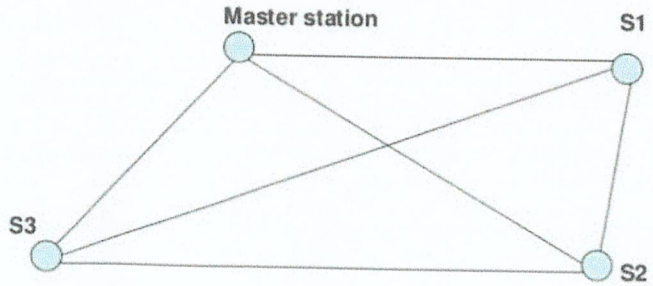
Schematic diagram of Rapid Static Method

II. Traverse Method



Schematic diagram of Traverse method

III. Trilateration Method



Trilateration method

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3. INTRODUCTION TO SURVEY SITE

The surveyed area is located on **Villages Kamanar and Tiratgarh.,** which comes under **Block Darbha, District Bastar, and Chhattisgarh.** Bastar Bus Stand longitude latitude is **82° 0'57.80"E 19° 4'36.87"N.** Survey site is located **31.3** Km from **Bastar.** Survey site comes under **Forest Division Kangerghati National Park Jagdalpur, Forest Range Kotamsar & Forest Circle Jagdalpur.**

AREA DETAILS & LAND CLASSIFICATION

S.No.	Division Name	District Name	Range Name	Village Name	Compartment No.	Area In Hectare
1	Kangerghati National Park Jagdalpur	Bastar	Kotamsar	Kamanar and Tiratgarh	RF 89	2.206
2					RF 90	2.199
3					RF 164	1.991
4					RF 165	1.990
TOTAL						**8.386**

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NATIONAL HIGHWAY DIVISION
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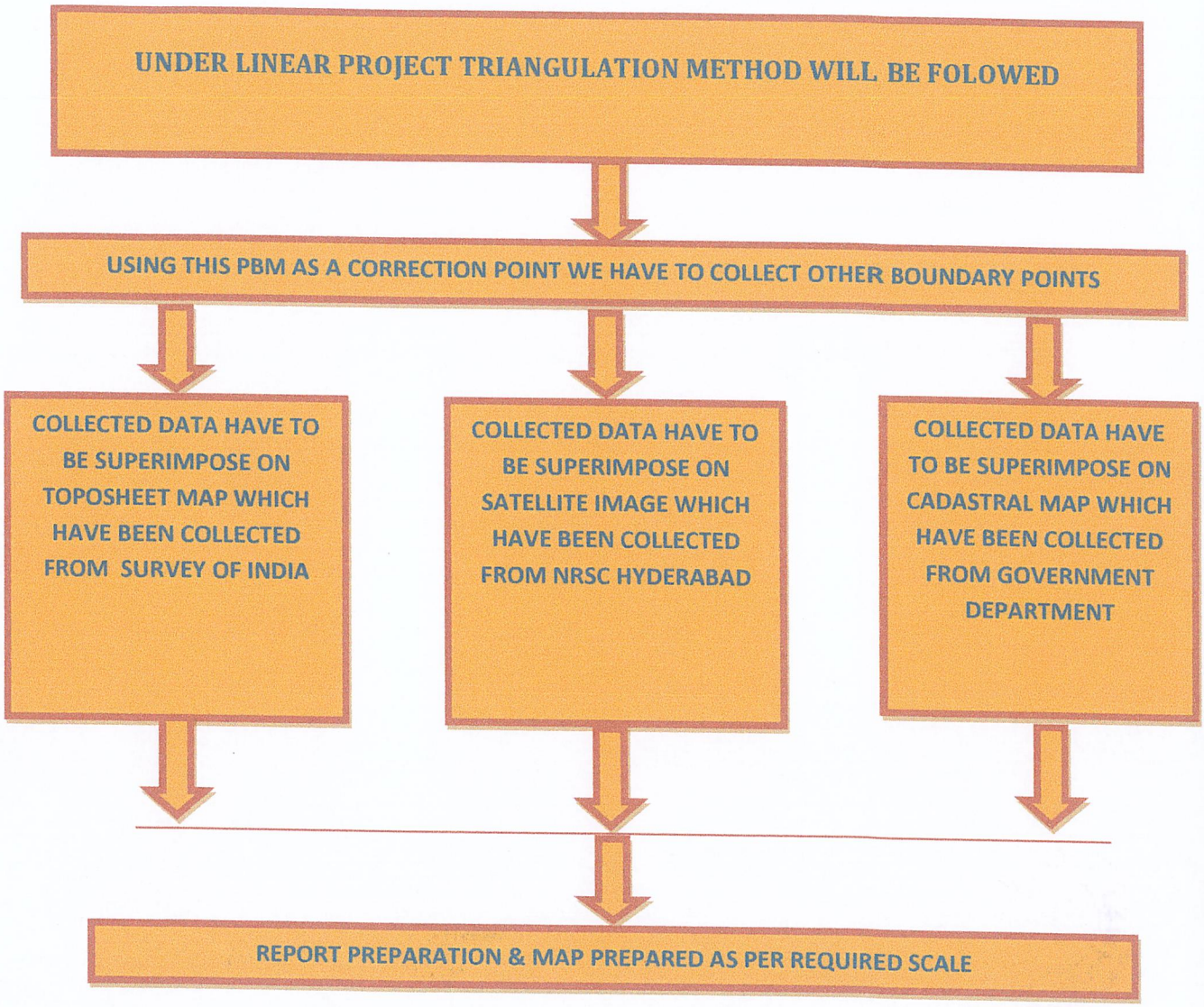
4. METHODOLOGY USED

SURVEY METHODLOGY UNDER LINEAR PROJECT



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5. CONTROL POINT

PRIMARY CONTROL POINT (FIXING OF BASE STATION POINT)

S. No.	P.C.P VILLAGE NAME	LONGITUDE	LATITUDE
GROUND CONTROL POINT 1	Kamanar and Tiratgarh	81° 52' 47.288" E	18° 53' 40.876" N
GROUND CONTROL POINT 2		81° 51' 49.553" E	18° 54' 42.613" N
GROUND CONTROL POINT 3		81° 53' 40.518" E	18° 56' 08.074" N

SURVEYED GROUND CONTROL POINTS

S.No.	PILLAR ID	LONGITUDE	LATITUDE
1	C1	81° 53' 37.730" E	18° 55' 40.917" N
2	C2	81° 53' 37.184" E	18° 55' 39.039" N
3	C3	81° 53' 36.509" E	18° 55' 36.718" N
4	C4	81° 53' 35.935" E	18° 55' 34.818" N
5	C5	81° 53' 35.310" E	18° 55' 32.748" N
6	C6	81° 53' 34.711" E	18° 55' 30.923" N
7	C7	81° 53' 34.032" E	18° 55' 28.856" N
8	C8	81° 53' 33.750" E	18° 55' 27.931" N
9	C9	81° 53' 33.777" E	18° 55' 25.748" N
10	C10	81° 53' 34.140" E	18° 55' 24.523" N
11	C11	81° 53' 35.116" E	18° 55' 23.458" N
12	C12	81° 53' 37.390" E	18° 55' 21.561" N
13	C13	81° 53' 38.220" E	18° 55' 20.626" N
14	C14	81° 53' 38.619" E	18° 55' 18.977" N
15	C15	81° 53' 38.604" E	18° 55' 16.802" N
16	C16	81° 53' 38.352" E	18° 55' 15.811" N
17	C17	81° 53' 37.385" E	18° 55' 15.006" N
18	C18	81° 53' 36.557" E	18° 55' 14.245" N
19	C19	81° 53' 36.264" E	18° 55' 12.882" N
20	C20	81° 53' 36.572" E	18° 55' 12.059" N
21	C21	81° 53' 37.883" E	18° 55' 11.965" N
22	C22	81° 53' 39.648" E	18° 55' 11.727" N
23	C23	81° 53' 40.582" E	18° 55' 11.956" N
24	C24	81° 53' 41.440" E	18° 55' 11.715" N
25	C25	81° 53' 41.879" E	18° 55' 11.168" N
26	C26	81° 53' 42.521" E	18° 55' 9.488" N
27	C27	81° 53' 43.187" E	18° 55' 8.491" N
28	C28	81° 53' 43.445" E	18° 55' 8.079" N
29	C29	81° 53' 43.465" E	18° 55' 7.315" N
30	C30	81° 53' 43.974" E	18° 55' 6.782" N

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S. No.	PILLAR ID	LONGITUDE	LATITUDE
31	C31	81° 53' 44.256" E	18° 55' 6.061" N
32	C32	81° 53' 44.343" E	18° 55' 5.562" N
33	C33	81° 53' 43.963" E	18° 55' 4.783" N
34	C34	81° 53' 43.625" E	18° 55' 4.147" N
35	C35	81° 53' 43.170" E	18° 55' 3.829" N
36	C36	81° 53' 42.240" E	18° 55' 3.770" N
37	C37	81° 53' 41.467" E	18° 55' 3.747" N
38	C38	81° 53' 40.906" E	18° 55' 3.530" N
39	C39	81° 53' 40.418" E	18° 55' 3.607" N
40	C40	81° 53' 40.348" E	18° 55' 3.979" N
41	C41	81° 53' 40.530" E	18° 55' 4.536" N
42	C42	81° 53' 40.340" E	18° 55' 5.280" N
43	C43	81° 53' 40.014" E	18° 55' 6.024" N
44	C44	81° 53' 39.354" E	18° 55' 6.071" N
45	C45	81° 53' 38.908" E	18° 55' 5.520" N
46	C46	81° 53' 38.507" E	18° 55' 5.135" N
47	C47	81° 53' 37.674" E	18° 55' 4.982" N
48	C48	81° 53' 36.046" E	18° 55' 5.063" N
49	C49	81° 53' 35.285" E	18° 55' 5.209" N
50	C50	81° 53' 34.300" E	18° 55' 5.554" N
51	C51	81° 53' 33.359" E	18° 55' 6.073" N
52	C52	81° 53' 32.817" E	18° 55' 6.522" N
53	C53	81° 53' 32.147" E	18° 55' 6.619" N
54	C54	81° 53' 31.320" E	18° 55' 6.437" N
55	C55	81° 53' 30.607" E	18° 55' 6.620" N
56	C56	81° 53' 29.690" E	18° 55' 7.229" N
57	C57	81° 53' 28.980" E	18° 55' 7.581" N
58	C58	81° 53' 26.512" E	18° 55' 8.051" N
59	C59	81° 53' 24.989" E	18° 55' 8.369" N
60	C60	81° 53' 23.900" E	18° 55' 8.338" N
61	C61	81° 53' 22.660" E	18° 55' 7.578" N
62	C62	81° 53' 22.050" E	18° 55' 6.989" N
63	C63	81° 53' 21.782" E	18° 55' 6.135" N
64	C64	81° 53' 21.035" E	18° 55' 4.168" N
65	C65	81° 53' 21.058" E	18° 55' 3.167" N
66	C66	81° 53' 21.357" E	18° 55' 2.672" N
67	C67	81° 53' 22.803" E	18° 55' 0.896" N
68	C68	81° 53' 23.584" E	18° 54' 59.779" N
69	C69	81° 53' 24.299" E	18° 54' 57.654" N
70	C70	81° 53' 24.791" E	18° 54' 55.773" N
71	C71	81° 53' 25.360" E	18° 54' 53.599" N
72	C72	81° 53' 25.448" E	18° 54' 51.934" N
73	C73	81° 53' 23.914" E	18° 54' 48.974" N
74	C74	81° 53' 23.249" E	18° 54' 48.176" N
75	C75	81° 53' 21.147" E	18° 54' 46.448" N
76	C76	81° 53' 18.684" E	18° 54' 44.422" N

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S.No.	PILLAR ID	LONGITUDE	LATITUDE
77	C77	81° 53' 16.057" E	18° 54' 42.223" N
78	C78	81° 53' 15.496" E	18° 54' 41.822" N
79	C79	81° 53' 14.070" E	18° 54' 41.442" N
80	C80	81° 53' 13.043" E	18° 54' 41.452" N
81	C81	81° 53' 11.473" E	18° 54' 41.468" N
82	C82	81° 53' 9.152" E	18° 54' 41.467" N
83	C83	81° 53' 6.661" E	18° 54' 41.466" N
84	C84	81° 53' 3.411" E	18° 54' 41.605" N
85	C85	81° 53' 0.192" E	18° 54' 41.742" N
86	C86	81° 52' 57.873" E	18° 54' 41.855" N
87	C87	81° 52' 55.675" E	18° 54' 41.962" N
88	C88	81° 52' 53.670" E	18° 54' 41.823" N
89	C89	81° 52' 52.820" E	18° 54' 41.486" N
90	C90	81° 52' 49.569" E	18° 54' 39.856" N
91	C91	81° 52' 46.531" E	18° 54' 38.399" N
92	C92	81° 52' 44.540" E	18° 54' 36.271" N
93	C93	81° 52' 42.496" E	18° 54' 34.087" N
94	C94	81° 52' 40.993" E	18° 54' 32.409" N
95	C95	81° 52' 39.219" E	18° 54' 30.430" N
96	C96	81° 52' 38.644" E	18° 54' 29.300" N
97	C97	81° 52' 38.567" E	18° 54' 28.164" N
98	C98	81° 52' 39.176" E	18° 54' 25.887" N
99	C99	81° 52' 39.831" E	18° 54' 23.442" N
100	C100	81° 52' 40.429" E	18° 54' 21.240" N
101	C101	81° 52' 41.183" E	18° 54' 18.464" N
102	C102	81° 52' 42.420" E	18° 54' 15.687" N
103	C103	81° 52' 43.891" E	18° 54' 12.382" N
104	C104	81° 52' 45.313" E	18° 54' 9.114" N
105	C105	81° 52' 46.956" E	18° 54' 5.338" N
106	C106	81° 52' 47.724" E	18° 54' 3.520" N
107	C107	81° 52' 47.873" E	18° 54' 1.806" N
108	C108	81° 52' 48.029" E	18° 53' 58.456" N
109	C109	81° 52' 48.218" E	18° 53' 54.390" N
110	C110	81° 52' 48.776" E	18° 53' 52.683" N
111	C111	81° 52' 49.802" E	18° 53' 51.744" N
112	C112	81° 52' 51.340" E	18° 53' 50.193" N
113	C113	81° 52' 51.596" E	18° 53' 49.541" N
114	C114	81° 52' 50.673" E	18° 53' 47.712" N
115	C115	81° 52' 49.896" E	18° 53' 46.697" N
116	C116	81° 52' 49.273" E	18° 53' 46.476" N
117	C117	81° 52' 48.154" E	18° 53' 46.717" N
118	C118	81° 52' 47.525" E	18° 53' 46.387" N
119	C119	81° 52' 47.410" E	18° 53' 45.856" N
120	C120	81° 52' 48.236" E	18° 53' 44.293" N
121	C121	81° 52' 49.010" E	18° 53' 42.981" N
122	C122	81° 52' 49.063" E	18° 53' 42.077" N

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S.No.	PILLAR ID	LONGITUDE	LATITUDE
123	C123	81° 52' 48.361" E	18° 53' 41.519" N
124	C124	81° 52' 47.470" E	18° 53' 41.2356" N
125	R1	81° 53' 37.499" E	18° 55' 40.978" N
126	R2	81° 53' 36.951" E	18° 55' 39.093" N
127	R3	81° 53' 36.277" E	18° 55' 36.771" N
128	R4	81° 53' 35.704" E	18° 55' 34.875" N
129	R5	81° 53' 35.081" E	18° 55' 32.813" N
130	R6	81° 53' 34.484" E	18° 55' 30.994" N
131	R7	81° 53' 33.803" E	18° 55' 28.922" N
132	R8	81° 53' 33.514" E	18° 55' 27.972" N
133	R9	81° 53' 33.547" E	18° 55' 25.686" N
134	R10	81° 53' 33.939" E	18° 55' 24.401" N
135	R11	81° 53' 34.958" E	18° 55' 23.287" N
136	R12	81° 53' 37.218" E	18° 55' 21.401" N
137	R13	81° 53' 38.000" E	18° 55' 20.521" N
138	R14	81° 53' 38.380" E	18° 55' 18.952" N
139	R15	81° 53' 38.365" E	18° 55' 16.830" N
140	R16	81° 53' 38.137" E	18° 55' 15.935" N
141	R17	81° 53' 37.227" E	18° 55' 15.178" N
142	R18	81° 53' 36.347" E	18° 55' 14.354" N
143	R19	81° 53' 36.025" E	18° 55' 12.866" N
144	R20	81° 53' 36.443" E	18° 55' 11.867" N
145	R21	81° 53' 37.857" E	18° 55' 11.738" N
146	R22	81° 53' 39.677" E	18° 55' 11.501" N
147	R23	81° 53' 40.575" E	18° 55' 11.719" N
148	R24	81° 53' 41.295" E	18° 55' 11.522" N
149	R25	81° 53' 41.667" E	18° 55' 11.058" N
150	R26	81° 53' 42.313" E	18° 55' 9.375" N
151	R27	81° 53' 42.983" E	18° 55' 8.372" N
152	R28	81° 53' 43.207" E	18° 55' 8.015" N
153	R29	81° 53' 43.239" E	18° 55' 7.223" N
154	R30	81° 53' 43.766" E	18° 55' 6.661" N
155	R31	81° 53' 44.024" E	18° 55' 6.002" N
156	R32	81° 53' 44.095" E	18° 55' 5.594" N
157	R33	81° 53' 43.748" E	18° 55' 4.883" N
158	R34	81° 53' 43.430" E	18° 55' 4.293" N
159	R35	81° 53' 43.085" E	18° 55' 4.051" N
160	R36	81° 53' 42.228" E	18° 55' 3.997" N
161	R37	81° 53' 41.431" E	18° 55' 3.972" N
162	R38	81° 53' 40.879" E	18° 55' 3.765" N
163	R39	81° 53' 40.624" E	18° 55' 3.806" N
164	R40	81° 53' 40.593" E	18° 55' 3.965" N
165	R41	81° 53' 40.769" E	18° 55' 4.528" N
166	R42	81° 53' 40.573" E	18° 55' 5.333" N
167	R43	81° 53' 40.195" E	18° 55' 6.173" N
168	R44	81° 53' 39.294" E	18° 55' 6.291" N

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S.No.	PILLAR ID	LONGITUDE	LATITUDE
169	R45	81° 53' 38.728" E	18° 55' 5.670" N
170	R46	81° 53' 38.389" E	18° 55' 5.345" N
171	R47	81° 53' 37.657" E	18° 55' 5.211" N
172	R48	81° 53' 36.077" E	18° 55' 5.289" N
173	R49	81° 53' 35.351" E	18° 55' 5.429" N
174	R50	81° 53' 34.402" E	18° 55' 5.761" N
175	R51	81° 53' 33.499" E	18° 55' 6.259" N
176	R52	81° 53' 32.916" E	18° 55' 6.729" N
177	R53	81° 53' 32.123" E	18° 55' 6.846" N
178	R54	81° 53' 31.325" E	18° 55' 6.671" N
179	R55	81° 53' 30.709" E	18° 55' 6.830" N
180	R56	81° 53' 29.810" E	18° 55' 7.425" N
181	R57	81° 53' 29.063" E	18° 55' 7.794" N
182	R58	81° 53' 26.561" E	18° 55' 8.274" N
183	R59	81° 53' 25.011" E	18° 55' 8.596" N
184	R60	81° 53' 23.829" E	18° 55' 8.556" N
185	R61	81° 53' 22.507" E	18° 55' 7.753" N
186	R62	81° 53' 21.835" E	18° 55' 7.089" N
187	R63	81° 53' 21.555" E	18° 55' 6.207" N
188	R64	81° 53' 20.802" E	18° 55' 4.219" N
189	R65	81° 53' 20.823" E	18° 55' 3.124" N
190	R66	81° 53' 21.149" E	18° 55' 2.558" N
191	R67	81° 53' 22.609" E	18° 55' 0.763" N
192	R68	81° 53' 23.366" E	18° 54' 59.679" N
193	R69	81° 53' 24.069" E	18° 54' 57.591" N
194	R70	81° 53' 24.554" E	18° 54' 55.739" N
195	R71	81° 53' 25.123" E	18° 54' 53.565" N
196	R72	81° 53' 25.206" E	18° 54' 51.982" N
197	R73	81° 53' 23.711" E	18° 54' 49.096" N
198	R74	81° 53' 23.076" E	18° 54' 48.334" N
199	R75	81° 53' 20.975" E	18° 54' 46.607" N
200	R76	81° 53' 18.527" E	18° 54' 44.594" N
201	R77	81° 53' 15.906" E	18° 54' 42.400" N
202	R78	81° 53' 15.388" E	18° 54' 42.030" N
203	R79	81° 53' 14.038" E	18° 54' 41.670" N
204	R80	81° 53' 13.045" E	18° 54' 41.680" N
205	R81	81° 53' 11.475" E	18° 54' 41.696" N
206	R82	81° 53' 9.166" E	18° 54' 41.695" N
207	R83	81° 53' 6.666" E	18° 54' 41.694" N
208	R84	81° 53' 3.428" E	18° 54' 41.832" N
209	R85	81° 53' 0.204" E	18° 54' 41.970" N
210	R86	81° 52' 57.899" E	18° 54' 42.082" N
211	R87	81° 52' 55.687" E	18° 54' 42.190" N
212	R88	81° 52' 53.614" E	18° 54' 42.044" N
213	R89	81° 52' 52.728" E	18° 54' 41.697" N
214	R90	81° 52' 49.460" E	18° 54' 40.058" N

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S.No.	PILLAR ID	LONGITUDE	LATITUDE
215	R91	81° 52' 46.374" E	18° 54' 38.571" N
216	R92	81° 52' 44.381" E	18° 54' 36.443" N
217	R93	81° 52' 42.316" E	18° 54' 34.236" N
218	R94	81° 52' 40.805" E	18° 54' 32.550" N
219	R95	81° 52' 39.004" E	18° 54' 30.530" N
220	R96	81° 52' 38.410" E	18° 54' 29.344" N
221	R97	81° 52' 38.328" E	18° 54' 28.178" N
222	R98	81° 52' 38.939" E	18° 54' 25.848" N
223	R99	81° 52' 39.599" E	18° 54' 23.385" N
224	R100	81° 52' 40.194" E	18° 54' 21.193" N
225	R101	81° 52' 40.951" E	18° 54' 18.407" N
226	R102	81° 52' 42.206" E	18° 54' 15.583" N
227	R103	81° 52' 43.671" E	18° 54' 12.294" N
228	R104	81° 52' 45.089" E	18° 54' 9.033" N
229	R105	81° 52' 46.734" E	18° 54' 5.252" N
230	R106	81° 52' 47.489" E	18° 54' 3.467" N
231	R107	81° 52' 47.634" E	18° 54' 1.792" N
232	R108	81° 52' 47.789" E	18° 53' 58.462" N
233	R109	81° 52' 47.990" E	18° 53' 54.322" N
234	R110	81° 52' 48.584" E	18° 53' 52.547" N
235	R111	81° 52' 49.632" E	18° 53' 51.584" N
236	R112	81° 52' 51.133" E	18° 53' 50.070" N
237	R113	81° 52' 51.336" E	18° 53' 49.552" N
238	R114	81° 52' 50.467" E	18° 53' 47.830" N
239	R115	81° 52' 49.745" E	18° 53' 46.886" N
240	R116	81° 52' 49.256" E	18° 53' 46.713" N
241	R117	81° 52' 48.103" E	18° 53' 46.939" N
242	R118	81° 52' 47.320" E	18° 53' 46.506" N
243	R119	81° 52' 47.173" E	18° 53' 45.826" N
244	R120	81° 52' 48.023" E	18° 53' 44.191" N
245	R121	81° 52' 48.774" E	18° 53' 42.915" N
246	R122	81° 52' 48.818" E	18° 53' 42.179" N
247	R123	81° 52' 48.243" E	18° 53' 41.722" N
248	R124	81° 52' 47.394" E	18° 53' 41.452" N
249	L1	81° 53' 37.960" E	18° 55' 40.857" N
250	L2	81° 53' 37.416" E	18° 55' 38.984" N
251	L3	81° 53' 36.740" E	18° 55' 36.656" N
252	L4	81° 53' 36.165" E	18° 55' 34.754" N
253	L5	81° 53' 35.539" E	18° 55' 32.682" N
254	L6	81° 53' 34.944" E	18° 55' 30.870" N
255	L7	81° 53' 34.262" E	18° 55' 28.791" N
256	L8	81° 53' 33.989" E	18° 55' 27.900" N
257	L9	81° 53' 34.016" E	18° 55' 25.781" N
258	L10	81° 53' 34.356" E	18° 55' 24.634" N
259	L11	81° 53' 35.286" E	18° 55' 23.619" N
260	L12	81° 53' 37.561" E	18° 55' 21.721" N

Director
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JAGDALPUR
Bastar

S.No.	PILLAR ID	LONGITUDE	LATITUDE
261	L13	81° 53' 38.440" E	18° 55' 20.731" N
262	L14	81° 53' 38.859" E	18° 55' 19.002" N
263	L15	81° 53' 38.843" E	18° 55' 16.775" N
264	L16	81° 53' 38.566" E	18° 55' 15.687" N
265	L17	81° 53' 37.547" E	18° 55' 14.839" N
266	L18	81° 53' 36.776" E	18° 55' 14.130" N
267	L19	81° 53' 36.512" E	18° 55' 12.898" N
268	L20	81° 53' 36.745" E	18° 55' 12.275" N
269	L21	81° 53' 37.908" E	18° 55' 12.191" N
270	L22	81° 53' 39.634" E	18° 55' 11.958" N
271	L23	81° 53' 40.582" E	18° 55' 12.191" N
272	L24	81° 53' 41.579" E	18° 55' 11.918" N
273	L25	81° 53' 42.092" E	18° 55' 11.279" N
274	L26	81° 53' 42.737" E	18° 55' 9.589" N
275	L27	81° 53' 43.391" E	18° 55' 8.611" N
276	L28	81° 53' 43.684" E	18° 55' 8.143" N
277	L29	81° 53' 43.693" E	18° 55' 7.412" N
278	L30	81° 53' 44.182" E	18° 55' 6.903" N
279	L31	81° 53' 44.489" E	18° 55' 6.120" N
280	L32	81° 53' 44.591" E	18° 55' 5.530" N
281	L33	81° 53' 44.178" E	18° 55' 4.683" N
282	L34	81° 53' 43.804" E	18° 55' 3.989" N
283	L35	81° 53' 43.256" E	18° 55' 3.606" N
284	L36	81° 53' 42.252" E	18° 55' 3.542" N
285	L37	81° 53' 41.517" E	18° 55' 3.520" N
286	L38	81° 53' 40.933" E	18° 55' 3.295" N
287	L39	81° 53' 40.212" E	18° 55' 3.409" N
288	L40	81° 53' 40.102" E	18° 55' 3.994" N
289	L41	81° 53' 40.282" E	18° 55' 4.543" N
290	L42	81° 53' 40.112" E	18° 55' 5.208" N
291	L43	81° 53' 39.849" E	18° 55' 5.808" N
292	L44	81° 53' 39.465" E	18° 55' 5.834" N
293	L45	81° 53' 39.089" E	18° 55' 5.369" N
294	L46	81° 53' 38.624" E	18° 55' 4.925" N
295	L47	81° 53' 37.691" E	18° 55' 4.753" N
296	L48	81° 53' 36.016" E	18° 55' 4.836" N
297	L49	81° 53' 35.220" E	18° 55' 4.989" N
298	L50	81° 53' 34.198" E	18° 55' 5.347" N
299	L51	81° 53' 33.219" E	18° 55' 5.887" N
300	L52	81° 53' 32.712" E	18° 55' 6.307" N
301	L53	81° 53' 32.156" E	18° 55' 6.387" N
302	L54	81° 53' 31.316" E	18° 55' 6.202" N
303	L55	81° 53' 30.504" E	18° 55' 6.411" N
304	L56	81° 53' 29.565" E	18° 55' 7.033" N
305	L57	81° 53' 28.900" E	18° 55' 7.364" N
306	L58	81° 53' 26.463" E	18° 55' 7.829" N

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S.No.	PILLAR ID	LONGITUDE	LATITUDE
307	L59	81° 53' 24.967" E	18° 55' 8.141" N
308	L60	81° 53' 23.973" E	18° 55' 8.113" N
309	L61	81° 53' 22.811" E	18° 55' 7.400" N
310	L62	81° 53' 22.262" E	18° 55' 6.870" N
311	L63	81° 53' 22.009" E	18° 55' 6.064" N
312	L64	81° 53' 21.275" E	18° 55' 4.131" N
313	L65	81° 53' 21.296" E	18° 55' 3.230" N
314	L66	81° 53' 21.556" E	18° 55' 2.799" N
315	L67	81° 53' 22.998" E	18° 55' 1.029" N
316	L68	81° 53' 23.801" E	18° 54' 59.879" N
317	L69	81° 53' 24.530" E	18° 54' 57.716" N
318	L70	81° 53' 25.021" E	18° 54' 55.837" N
319	L71	81° 53' 25.598" E	18° 54' 53.632" N
320	L72	81° 53' 25.690" E	18° 54' 51.886" N
321	L73	81° 53' 24.118" E	18° 54' 48.851" N
322	L74	81° 53' 23.422" E	18° 54' 48.017" N
323	L75	81° 53' 21.297" E	18° 54' 46.270" N
324	L76	81° 53' 18.841" E	18° 54' 44.250" N
325	L77	81° 53' 16.208" E	18° 54' 42.046" N
326	L78	81° 53' 15.604" E	18° 54' 41.614" N
327	L79	81° 53' 14.101" E	18° 54' 41.214" N
328	L80	81° 53' 13.024" E	18° 54' 41.225" N
329	L81	81° 53' 11.472" E	18° 54' 41.240" N
330	L82	81° 53' 9.151" E	18° 54' 41.239" N
331	L83	81° 53' 6.656" E	18° 54' 41.239" N
332	L84	81° 53' 3.403" E	18° 54' 41.378" N
333	L85	81° 53' 0.181" E	18° 54' 41.515" N
334	L86	81° 52' 57.850" E	18° 54' 41.629" N
335	L87	81° 52' 55.677" E	18° 54' 41.734" N
336	L88	81° 52' 53.726" E	18° 54' 41.598" N
337	L89	81° 52' 52.922" E	18° 54' 41.280" N
338	L90	81° 52' 49.679" E	18° 54' 39.653" N
339	L91	81° 52' 46.679" E	18° 54' 38.215" N
340	L92	81° 52' 44.729" E	18° 54' 36.131" N
341	L93	81° 52' 42.677" E	18° 54' 33.937" N
342	L94	81° 52' 41.200" E	18° 54' 32.289" N
343	L95	81° 52' 39.421" E	18° 54' 30.305" N
344	L96	81° 52' 38.880" E	18° 54' 29.241" N
345	L97	81° 52' 38.808" E	18° 54' 28.185" N
346	L98	81° 52' 39.405" E	18° 54' 25.952" N
347	L99	81° 52' 40.063" E	18° 54' 23.498" N
348	L100	81° 52' 40.657" E	18° 54' 21.310" N
349	L101	81° 52' 41.410" E	18° 54' 18.538" N
350	L102	81° 52' 42.630" E	18° 54' 15.798" N
351	L103	81° 52' 44.112" E	18° 54' 12.470" N
352	L104	81° 52' 45.540" E	18° 54' 9.189" N

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S.No.	PILLAR ID	LONGITUDE	LATITUDE
353	L105	81° 52' 47.177" E	18° 54' 5.424" N
354	L106	81° 52' 47.960" E	18° 54' 3.573" N
355	L107	81° 52' 48.111" E	18° 54' 1.821" N
356	L108	81° 52' 48.267" E	18° 53' 58.475" N
357	L109	81° 52' 48.456" E	18° 53' 54.429" N
358	L110	81° 52' 48.986" E	18° 53' 52.806" N
359	L111	81° 52' 49.972" E	18° 53' 51.905" N
360	L112	81° 52' 51.547" E	18° 53' 50.316" N
361	L113	81° 52' 51.856" E	18° 53' 49.530" N
362	L114	81° 52' 50.879" E	18° 53' 47.595" N
363	L115	81° 52' 50.047" E	18° 53' 46.507" N
364	L116	81° 52' 49.290" E	18° 53' 46.239" N
365	L117	81° 52' 48.190" E	18° 53' 46.476" N
366	L118	81° 52' 47.737" E	18° 53' 46.239" N
367	L119	81° 52' 47.661" E	18° 53' 45.887" N
368	L120	81° 52' 48.448" E	18° 53' 44.400" N
369	L121	81° 52' 49.246" E	18° 53' 43.046" N
370	L122	81° 52' 49.309" E	18° 53' 41.976" N
371	L123	81° 52' 48.480" E	18° 53' 41.317" N
372	L124	81° 52' 47.545" E	18° 53' 41.020" N

DIRECTOR
Kanger Valley National Park
Jagdalpur

EXECUTIVE ENGINEER
NATIONAL HIGHWAY DIVISION
SUKMA

Computer Plus
Raipur (C.G.)

6. SURVEY DATE

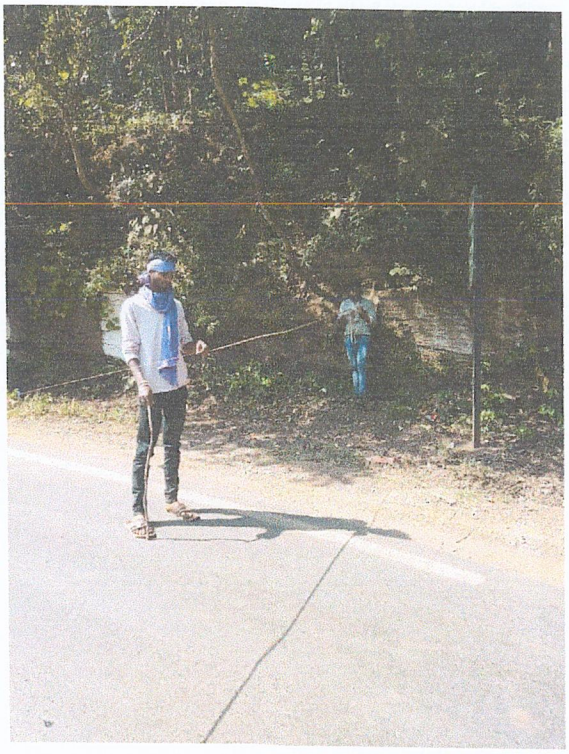
Survey Date	Survey Time	Village Name
17-10-2018	11.00 AM To 05.00 PM	Kamanar and Tiratgarh

Weather was nice with clear sun light. Survey pillar marking has been done before itself so it was easy to get the location point. Survey has been done by the survey team members Mr. Kishor Sahu, Mr. S.Rohit and Mr. Amit. The team was lead by **Mr. Kishor Sahu.**

Base Station Photographs

Director
Kanger Valley National Park
JAGDALPUR
Bastar

Survey Photographs with Staff



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Thank You!

DGPS SURVEY & REPORT PREPARED BY:

COMPUTER PLUS

Software Development & Consultancy

Plot No. 4 Sector-1, Devendra Nagar
Raipur (C.G.) 492001
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- MAP DIGITIZATION
- SOFTWARE DEVELOPMENT & WEB DESIGNING
- MOBILE & WEB APPS
- DATA ANALYSIS WORK