

CHHATTISGARH BHARATNET PHASE-II PROJECT

LIDAR/DGPS SURVEY REPORT FOR BARNAWAPARA WILD LIFE SANCTUARY, BALODA BAZAR FOREST DIVISION FOR DIVERSION OF PROPOSED OFC ROUTES

Forest Division : BALODA BAZAR FOREST DIVISION
Applied Forest Land (PF) : 1.137 Ha.
Block : KASDOL
District : BALODA BAZAR-BHATAPARA (C.G.)

Applicant -



**Chhattisgarh Infotech Promotion Society (CHiPS)
Raipur (Chhattisgarh)**

Submitted By -



TATA PROJECTS

RA

Tata Projects Limited, Raipur (Chhattisgarh)



Table of Contents

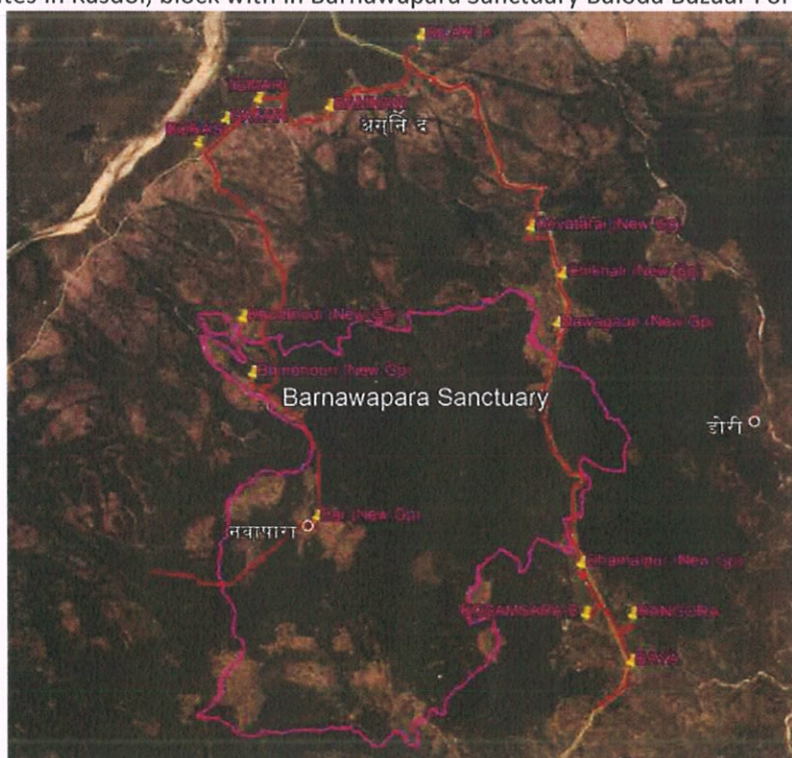
1. Introduction and Background.....	3
1.1. Background.....	3
1.2. Proposed Routes	3
1.3. Location	4
1.4. Objective.....	4
2. Scope of Work	5
3. Deliverables	5
4. Technical Approach	6
4.1. GCP Establishment for LiDAR (DGPS) Survey:	6
4.2. Mobile LiDAR (DGPS) data collection:	6
4.3. DRS / GIS Map Creation Using LiDAR data:	7
4.4. Demarcation of Proposed OFC on LiDAR data:	8
4.5. Geo-referencing of Maps:	9
4.6. Creation of Vector Data for Forest Diversion:.....	9
4.7. Generation of Map and Survey Reports for Forest Diversion	10
5. DGPS Survey Results.....	11
5.1. Forest Area Statement (Annexure-1)	11
5.2. LiDAR/DGPS Surveyed coordinates of Forest Patches (Annexure-2)	13
5.3. Geo-Referenced Maps of the Proposed Route (Annexure-3)	16
5.3.1. Map showing Geo-reference map of proposed OFC Route.	16
5.3.2. Map showing proposed OFC Route on Toposheet map on 1:50,000 scale	16

1.1. Background

The Chhattisgarh Infotech Promotion Society (CHiPS), a Registered Society promoted by the Government of Chhattisgarh, is the nodal agency and prime mover for propelling IT growth and implementation of IT plans in the State.

The Chhattisgarh Infotech Promotion Society (CHIPS) has selected an implementation partner “**Tata Project Limited**” for BharatNet Phase-II Project. The project has been conceived with the ambitious vision of providing connectivity to the yet unreached blocks in Chhattisgarh and entails massive investment on the infrastructure creation across the state which would serve as the information highway for decades to come.

The proposed routes in Kasdol, block with in Barnawapara Sanctuary Baloda Bazaar Forest Division.



OFC Cable Proposed Routes in kasdol Block in Barnawapara Sanctuary Baloda Bazaar Forest Division.

Chhattisgarh BharatNet Phase-II Project

1.3. Location

The proposed OFC Cable route in Barnawapara Sanctuary within Baloda Bazaar Forest Division (The OFC route Kasdol Block; District: Baloda Bazar-Bhatapara). The Proposed OFC length is approx. 94.086 km. Kasdol Block hence total route length is 94.086, The survey site passes through forest ranges Kothari and Barnawapara of Barnawapara Sanctuary, Baloda Bazaar Forest Division. The OFC Cable route is covered under Survey of India Toposheets 64 K07 and 64 K11 on RF 1:50000.

1.4. Objective

As per directives of Ministry of Environment & Forests (MoEF) dated 8th July 2011; all applications for Forest Diversion, under Forest Conservation Act, 1980 must be accompanied with Geo-referenced shape file, showing the boundary of the proposed area (both soft copy and hard copy maps), prepared using LiDAR/Differential GPS (DGPS) and the same should be uploaded to MoEF website along with the online application.

To meet this requirement, **Tata Project Limited** entrusted the DGPS survey work to **Genesys International Corporation Limited, Mumbai** through Mobile LiDAR Technology.

2. Scope of Work

1. Establishment of Ground Control Pointy with 72 Hours observation which covering approx. 15 km radius of the proposed route.
2. DGPS Survey for collection of ground coordinates along the proposed OFC Cable trench at every 200 m interval and/or at every turn/bend along the proposed trench. The DGPS data is collected at forest patches only.
3. Data processing and Interpretation
 - I. Geo-referencing of SOI Toposheet (scale 1:50000).
 - II. Creation of OFC Cable trench boundary vector map using the DGPS Surveyed data
 - III. Computation of Forest area and preparation of Forest Area Statement for proposed diversion. It includes Reserved/Protected Forest/ Orange Area & Revenue Forest Land.
 - IV. Preparation of Geo-referenced map showing proposed OFC Route.
 - V. Superimposition of cable route layer on Geo-referenced SOI Toposheet (scale 1:50000).
 - VI. Preparation of DGPS survey report along with soft copy of maps including shapefile format and kml file.
4. Preparation of Desired report, Geo-referenced maps and Technical compliance in Hard copy and soft copy.

3. Deliverables

The deliverables envisaged for the assignment are described below -

1. Proposed Forest Diversion area statement as per LiDAR / DGPS Survey of proposed OFC route.
2. Geo-referenced map showing proposed OFC route in forest area and superimposed on SOI maps based on LiDAR / DGPS observations – Hard and Soft Copy (Maps in PDF format, SHP and KML formats).
3. LiDAR / DGPS Survey and Mapping Reports containing Ground Control Points report as the primary Control Points.
4. DGPS Survey and mapping report on hard copy and soft copy in CD.

4. Technical Approach

4.1. GCP Establishment for LiDAR (DGPS) Survey:

DGPS Survey with high precision equipment was used in blocks to bring mapping in to a single co-ordinates system. These Ground Control Point (GCPs) were connected to the Mobile LiDAR Mapping for accuracy purpose. The Ground Control Point required for eliminates the traditional mapping. The system can achieve millimeter accuracy of vehicle positioning, 3-D coordinates, and objects measured from the Geo-referenced image sequences. The Ground Control Point with 72 Hours of DGPS observation for Post Processing the GCP data with International GNSS Service (IGS) stations.

4.2. Mobile LiDAR (DGPS) data collection:

DGPS based Mobile LiDAR data was collected along with 360 degree panoramic view of the OFC route corridor (25 meter on each side along the center of the road).



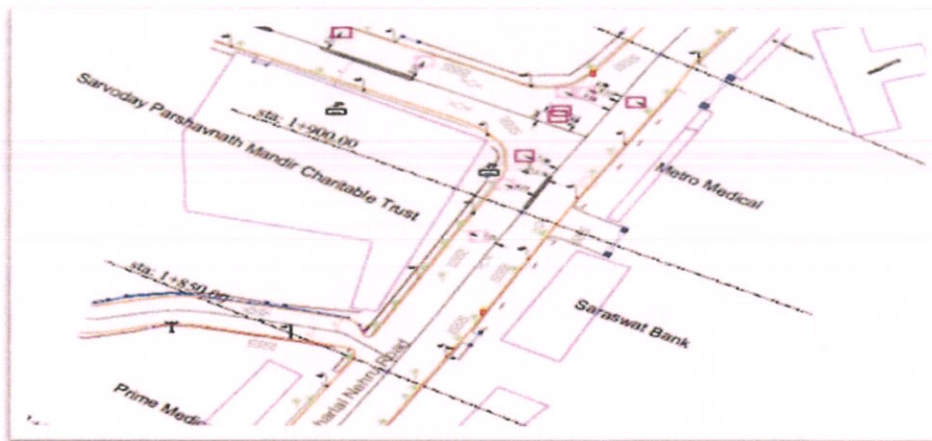
Mobile LiDAR Van

4.3. DRS / GIS Map Creation Using LiDAR data:

All the features along the route are captured using LiDAR data and Panoramic Imagery to create the DRS / GIS Map.



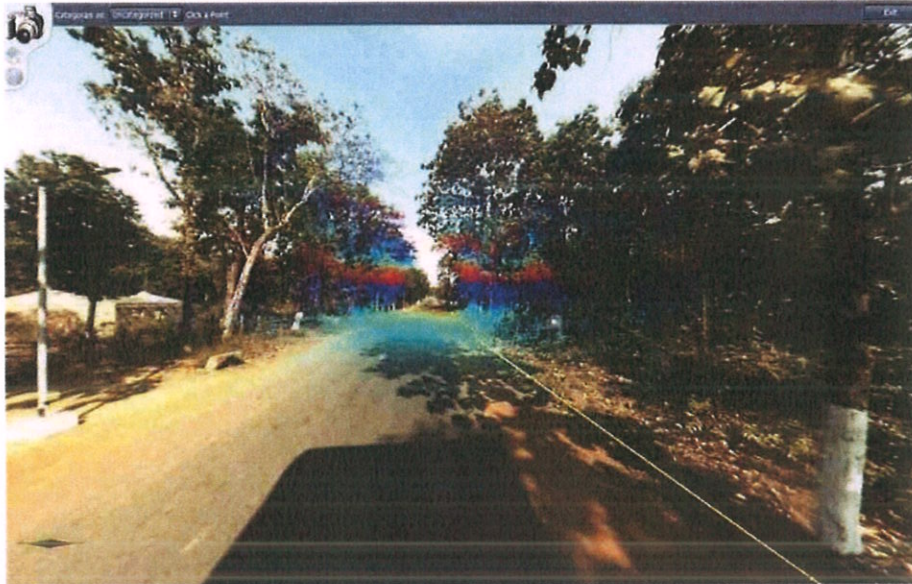
Feature Extraction on LiDAR



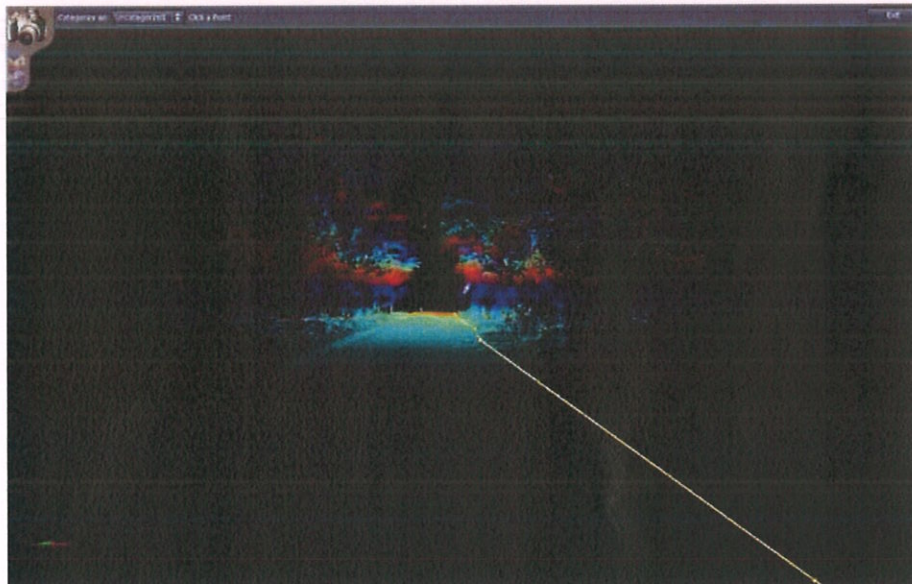
Final DRS / GIS Map

4.4. Demarcation of Proposed OFC on LiDAR data:

Proposed OFC line is demarcated based on the feasibility of trenching to be done on ground by referring the LiDAR data with the panoramic imagery.

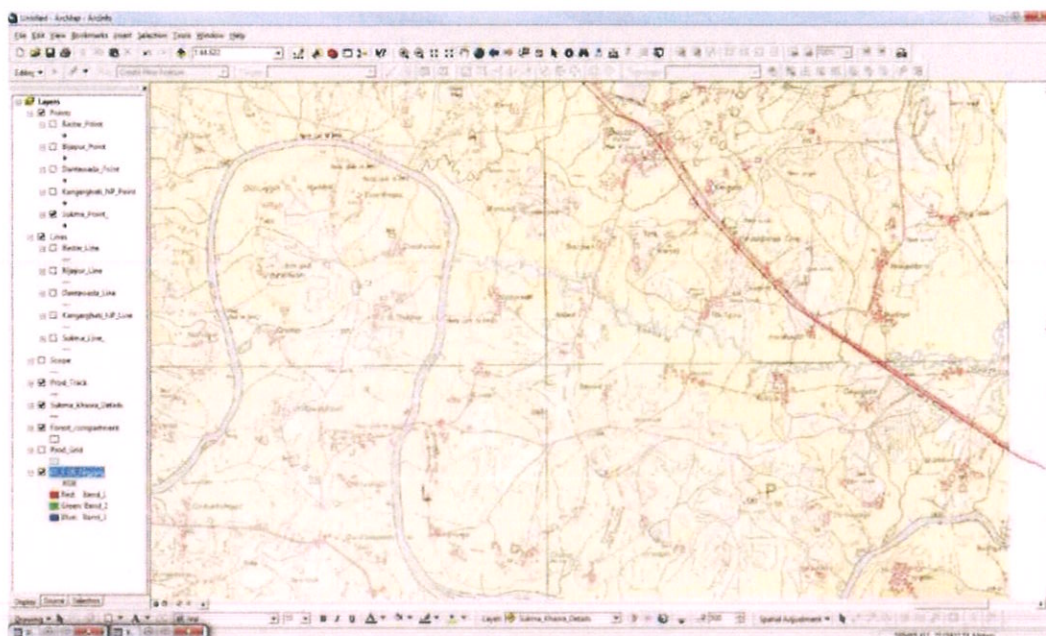


Proposed OFC Line on LiDAR Data (with Panoramic Imagery)

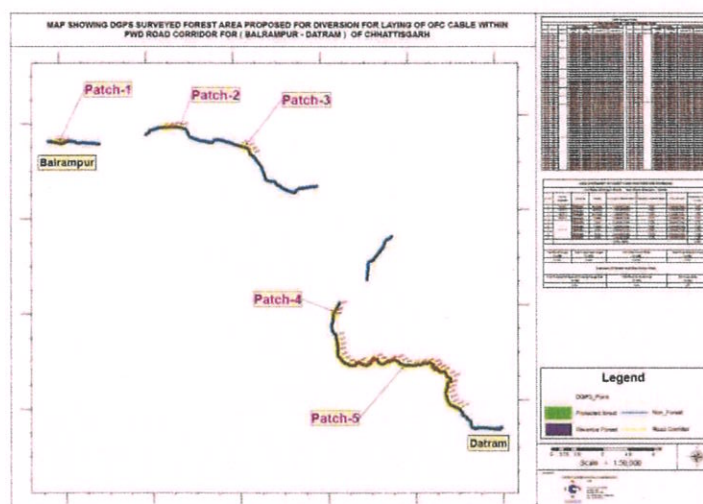


Proposed OFC Line on LiDAR Data only

Geo-referencing of Revenue Village Maps and SOI Toposheets are to be done. SOI Toposheets would be geo-referenced based on the coordinates provided on the maps whereas Revenue Village Maps would be geo-referenced with the help of GCPs collected on field. (At least 5 GCPs for a village having Government Forest Land are to be collected)

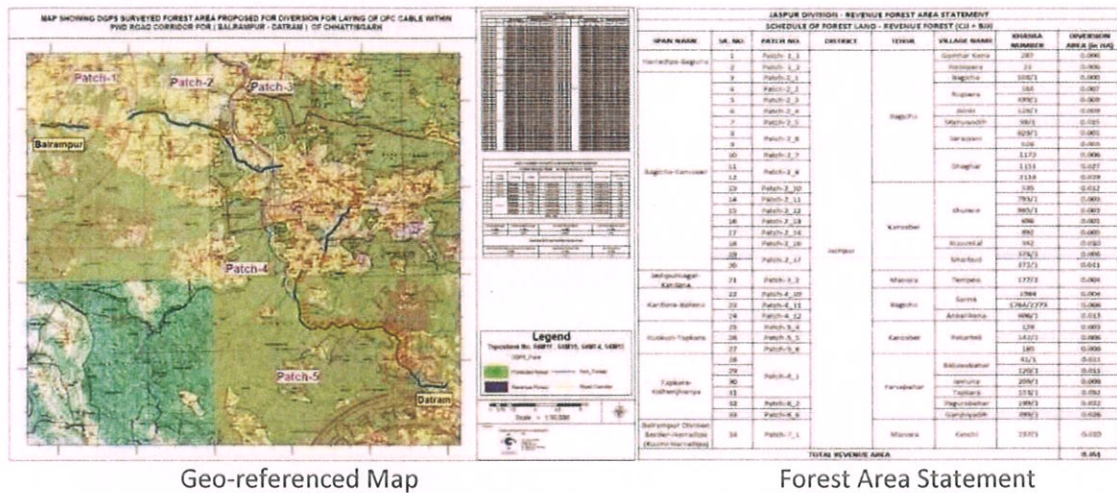


Different Layers such as Polygon of Reserved Forest /Protected Forest /Orange Area Patch, Centerline of Proposed OFC Trench, Non-Forest Trench line, Polygons showing Revenue Forest patches etc. are to be created using the Lidar based GDPS Observation, Geo-referenced maps and the information provided by the forest department and Revenue department.



4.7. Generation of Map and Survey Reports for Forest Diversion

A map is created by overlaying the created vector data for the forest patches on the Geo-referenced SOI Toposheets. The reports are generated for DGPS Points (with Lat/long) placed at the regular intervals of 100 m on the proposed OFC route in the forest area. Another report is generated having area calculation for the proposed trench area in different type of Forest Lands. Samples of these are as below.



Chhattisgarh BharatNet Phase-II Project

5. DGPS Survey Results

The total OFC route length in approx. 94.086 covered Kasdol Block of Baloda Bazar-Bhatapara District. Out of this 71.349 km OFC route length is passing through non-forest Land and 22.737 km OFC route length is passing through Forest Patches hence the proposed forest area for diversion 1.137 Ha. Forest Area Statement Report is in Annexure-1, and DGPS coordinates and forest patch boundary coordinates is in Annexure-2. The geo-referenced maps are in Annexure -3.

5.1. Forest Area Statement (Annexure-1)

Forest Area Statement –Barnawapara Sanctuary, Baloda Bazar Forest Division, District - Baloda Bazar-Bhatapara						
Total Route Length (in Km.)	Length of Non Forest Land (in Km.)	Width of Non Forest Land (in Km.)	Area of Non-Forest Land (in Ha.)	Length of Forest Land (in km.)	Width of Forest Land (in km.)	Area of Proposed Forest Land (in Ha.)
94.086	71.349	0.0005	3.567	22.737	0.0005	1.137

Barnawapara Sanctuary, Baloda Bazar Forest Division, Total Forest Area for Diversion Proposal							
Sl. No.	Forest Division	Forest range	No of Compartment	No of Patch	Length (in m.)	Width (in m.)	Proposed Area (In Ha.)
1	Baloda Bazar	Kothari	14	27	19260.394	0.5	0.963
2	Baloda Bazar	Barnawapara	1	3	3476.691	0.5	0.174
Total Diversion Area			15	30	22737.085	0.5	1.137

Barnawapara Sanctuary, Baloda Bazar Forest Division, Detail Description of Applied Forest Area									
Sl. No.	Patch	Route Name	Forest Range	Forest Block	Type	Comp. No	Length (in m.)	Width (in m.)	Area (In Ha.)
1	1	Bar To Awarai	Kothari	Dond	PF	FD186	1536.746	0.5	0.077
2	1	Bar To Awarai	Kothari	Dond	PF	FD186	612.315	0.5	0.031
3	1	Bar To Awarai	Kothari	Mudpar	PF	FD188	1886.770	0.5	0.094
4	1	Bar To Awarai	Kothari	Mudpar	PF	FD188	413.254	0.5	0.021
5	2	Borsi To Bar	Kothari	Latadadar	PF	106	374.279	0.5	0.019
6	2	Borsi To Bar	Kothari	Latadadar	PF	106	1950.000	0.5	0.098
7	2	Borsi To Bar	Kothari	Latadadar	PF	106	626.044	0.5	0.031


Divisional Forest Officer
 Baloda Bazar Division Baloda Bazar

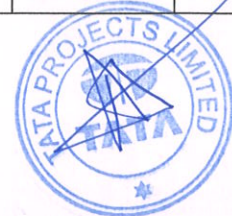
RAJ



Chhattisgarh BharatNet Phase-II Project

Barnawapara Sanctuary, Baloda Bazar Forest Division, Detail Description of Applied Forest Area									
Sl. No.	Pat ch	Route Name	Forest Range	Forest Block	Type	Comp. No	Length (in m.)	Width (in m.)	Area (In Ha.)
8	2	Borsi To Bar	Kothari	Latadadar	PF	107	219.300	0.5	0.012
9	2	Borsi To Bar	Kothari	Marer	PF	161	825.144	0.5	0.041
10	3	Borsi To Bar	Kothari	North Gudagarh	PF	177	180.871	0.5	0.009
11	2	Borsi To Bar	Kothari	Marer	PF	178	306.018	0.5	0.015
12	2	Borsi To Bar	Kothari	Marer	PF	178	531.277	0.5	0.027
13	3	Borsi To Bar	Kothari	Khudmudi	PF	77	236.406	0.5	0.012
14	3	Borsi To Bar	Kothari	Khudmudi	PF	77	673.506	0.5	0.034
15	3	Borsi To Bar	Kothari	Turturiya	PF	79	86.625	0.5	0.004
16	3	Borsi To Bar	Kothari	Turturiya	PF	79	427.383	0.5	0.021
17	3	Borsi To Bar	Kothari	Turturiya	PF	79	425.931	0.5	0.021
18	3	Borsi To Bar	Kothari	Khudmudi	PF	80	1276.494	0.5	0.064
19	3	Borsi To Bar	Kothari	Khudmudi	PF	80	1276.302	0.5	0.064
20	3	Borsi To Bar	Kothari	Khudmudi	PF	80	406.202	0.5	0.020
21	4	Nawagaon To Dhamalpur	Kothari	East Kothari	PF	222	426.803	0.5	0.021
22	4	Nawagaon To Dhamalpur	Kothari	East Kothari	PF	222	395.968	0.5	0.020
23	4	Nawagaon To Dhamalpur	Kothari	East Kothari	PF	223	644.291	0.5	0.032
24	5	Nawagaon To Dhamalpur	Bar-nawapara	Tenduchua	PF	151	1343.061	0.5	0.067
25	5	Nawagaon To Dhamalpur	Bar-nawapara	Tenduchua	PF	151	1950.000	0.5	0.098
26	5	Nawagaon To Dhamalpur	Bar-nawapara	Tenduchua	PF	151	183.630	0.5	0.009
27	5	Nawagaon To Dhamalpur	Kothari	South Kothari	PF	220	1029.077	0.5	0.051
28	5	Nawagaon To Dhamalpur	Kothari	South Kothari	PF	220	606.939	0.5	0.030
29	5	Nawagaon To Dhamalpur	Kothari	South Kothari	PF	221	965.526	0.5	0.048
30	5	Nawagaon To Dhamalpur	Kothari	South Kothari	PF	221	920.923	0.5	0.046
Total							22737.085	0.5	1.137

Divisional Forest Officer
Baloda Bazar Division Baloda Bazar

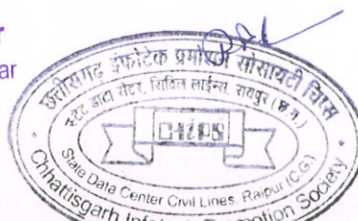


Chhattisgarh BharatNet Phase-II Project

5.2. LiDAR/DGPS Surveyed coordinates of Forest Patches (Annexure-2)

Point	Patch	Longitude in D:M:S	Latitude in D:M:S	Point	Patch	Longitude in D:M:S	Latitude in D:M:S
P-1	1	82°24'47.95182"	21°24'02.53182"	P-31	2	82°24'56.73775"	21°26'39.69827"
P-2	1	82°24'42.64606"	21°23'58.34914"	P-32	2	82°24'58.68724"	21°26'36.80346"
P-3	1	82°24'37.31704"	21°23'54.18167"	P-33	2	82°25'06.53683"	21°26'22.49976"
P-4	1	82°24'31.98874"	21°23'50.01229"	P-34	2	82°25'10.25681"	21°26'17.01366"
P-5	1	82°24'26.64280"	21°23'45.86331"	P-35	2	82°25'13.86682"	21°26'11.46293"
P-6	1	82°24'21.31528"	21°23'41.69197"	P-36	2	82°25'17.48635"	21°26'05.91412"
P-7	1	82°24'15.97540"	21°23'37.53598"	P-37	2	82°25'21.10688"	21°26'00.36765"
P-8	1	82°24'10.66168"	21°23'33.35236"	P-38	2	82°25'21.55635"	21°25'59.66705"
P-9	1	82°24'05.33971"	21°23'29.17526"	P-39	2	82°24'58.68724"	21°26'36.80346"
P-10	1	82°23'59.97998"	21°23'25.04068"	P-40	2	82°25'03.47213"	21°26'32.21807"
P-11	1	82°23'57.61615"	21°23'23.29269"	P-41	2	82°25'04.06536"	21°26'26.08699"
P-12	1	82°23'57.61615"	21°23'23.29269"	P-42	2	82°25'06.53683"	21°26'22.49976"
P-13	1	82°23'52.30078"	21°23'19.11334"	P-43	2	82°25'21.55635"	21°25'59.66705"
P-14	1	82°23'46.95039"	21°23'14.96862"	P-44	2	82°25'24.73273"	21°25'53.95880"
P-15	1	82°23'46.60450"	21°23'14.68447"	P-45	2	82°25'24.81448"	21°25'53.33615"
P-16	1	82°23'46.60450"	21°23'14.68447"	P-46	2	82°25'24.81448"	21°25'53.33615"
P-17	1	82°23'41.23758"	21°23'10.56065"	P-47	2	82°25'24.80454"	21°25'46.83799"
P-18	1	82°23'35.81482"	21°23'06.50058"	P-48	2	82°25'24.72231"	21°25'41.17328"
P-19	1	82°23'30.51064"	21°23'02.31435"	P-49	2	82°25'24.72231"	21°25'41.17328"
P-20	1	82°23'25.16202"	21°22'58.16829"	P-50	2	82°25'24.62441"	21°25'34.67108"
P-21	1	82°23'19.84386"	21°22'53.98760"	P-51	2	82°25'24.54952"	21°25'28.16905"
P-22	1	82°23'14.48088"	21°22'49.85958"	P-52	2	82°25'24.41623"	21°25'21.66811"
P-23	1	82°23'09.14760"	21°22'45.69500"	P-53	2	82°25'24.45914"	21°25'15.16544"
P-24	1	82°23'05.40915"	21°22'42.96757"	P-54	2	82°25'24.29959"	21°25'08.66446"
P-25	1	82°23'05.40915"	21°22'42.96757"	P-55	2	82°25'24.22270"	21°25'02.16178"
P-26	1	82°22'58.86359"	21°22'40.96235"	P-56	2	82°25'24.12084"	21°24'55.65946"
P-27	1	82°22'51.92371"	21°22'41.01785"	P-57	2	82°25'24.05827"	21°24'49.15657"
P-28	1	82°22'44.98739"	21°22'41.24933"	P-58	2	82°25'24.00264"	21°24'42.65363"
P-29	1	82°22'44.56118"	21°22'41.28090"	P-59	2	82°25'23.96520"	21°24'37.77651"
P-30	2	82°24'52.84370"	21°26'45.00742"	P-60	2	82°25'23.96520"	21°24'37.77651"


Divisional Forest Officer
 Baloda Bazar Division Baloda Bazar



Chhattisgarh BharatNet Phase-II Project

Point	Patch	Longitude in D:M:S	Latitude in D:M:S	Point	Patch	Longitude in D:M:S	Latitude in D:M:S
P-61	2	82°25'23.91716"	21°24'31.27323"	P-91	3	82°24'04.94537"	21°27'21.49428"
P-62	2	82°25'23.82380"	21°24'24.77076"	P-92	3	82°24'10.37534"	21°27'18.72828"
P-63	2	82°25'22.76106"	21°24'18.36558"	P-93	3	82°23'51.53053"	21°27'25.25130"
P-64	2	82°25'22.52966"	21°24'17.54694"	P-94	3	82°23'57.97969"	21°27'22.87725"
P-65	3	82°23'56.67830"	21°28'54.63827"	P-95	3	82°24'04.75381"	21°27'21.58615"
P-66	3	82°23'54.24542"	21°28'48.55177"	P-96	3	82°24'04.94537"	21°27'21.49428"
P-67	3	82°23'53.87801"	21°28'47.41938"	P-97	3	82°23'39.71149"	21°27'33.66540"
P-68	3	82°23'53.87801"	21°28'47.41938"	P-98	3	82°23'45.24604"	21°27'29.73896"
P-69	3	82°23'55.34535"	21°28'41.16940"	P-99	3	82°23'50.78260"	21°27'25.81267"
P-70	3	82°23'58.68959"	21°28'35.68830"	P-100	3	82°23'51.52468"	21°27'25.25582"
P-71	3	82°24'03.96474"	21°28'31.48657"	P-101	3	82°23'51.52807"	21°27'25.25779"
P-72	3	82°24'05.08907"	21°28'29.35941"	P-102	3	82°23'46.32651"	21°27'29.42609"
P-73	3	82°24'05.08907"	21°28'29.35941"	P-103	3	82°23'40.78883"	21°27'33.34796"
P-74	3	82°24'09.79942"	21°28'24.59974"	P-104	3	82°23'40.05827"	21°27'33.84123"
P-75	3	82°24'12.88172"	21°28'18.79403"	P-105	4	82°31'38.17364"	21°28'10.20674"
P-76	3	82°24'13.23212"	21°28'12.51494"	P-106	4	82°31'36.99433"	21°28'03.79807"
P-77	3	82°24'16.62718"	21°28'07.33214"	P-107	4	82°31'35.78750"	21°27'57.39467"
P-78	3	82°24'20.67276"	21°28'02.26355"	P-108	4	82°31'34.49536"	21°27'51.00781"
P-79	3	82°24'21.38065"	21°27'56.16308"	P-109	4	82°31'34.02882"	21°27'49.63848"
P-80	3	82°24'21.53452"	21°27'53.69475"	P-110	4	82°31'34.02882"	21°27'49.63848"
P-81	3	82°23'53.78604"	21°27'27.14421"	P-111	4	82°31'30.65915"	21°27'43.95511"
P-82	3	82°23'51.54626"	21°27'25.26840"	P-112	4	82°31'27.23252"	21°27'38.30328"
P-83	3	82°24'21.53452"	21°27'53.69475"	P-113	4	82°31'26.90155"	21°27'37.48918"
P-84	3	82°24'18.35215"	21°27'48.70079"	P-114	4	82°31'26.90155"	21°27'37.48918"
P-85	3	82°24'17.84751"	21°27'42.22411"	P-115	4	82°31'24.09835"	21°27'31.54267"
P-86	3	82°24'13.54277"	21°27'37.38525"	P-116	4	82°31'28.46460"	21°27'08.23042"
P-87	3	82°24'07.42313"	21°27'34.71137"	P-117	4	82°31'28.46460"	21°27'08.23042"
P-88	3	82°24'00.78940"	21°27'33.25018"	P-118	4	82°31'23.58101"	21°27'03.76447"
P-89	3	82°23'55.69718"	21°27'28.83011"	P-119	4	82°31'21.64501"	21°26'58.10329"
P-90	3	82°23'51.53053"	21°27'25.25130"	P-120	4	82°31'21.24774"	21°26'51.64560"


Divisional Forest Officer
 Baloda Bazar Division Baloda Bazar



Chhattisgarh BharatNet Phase-II Project

Point	Patch	Longitude in D:M:S	Latitude in D:M:S	Point	Patch	Longitude in D:M:S	Latitude in D:M:S
P-121	4	82°31'21.91121"	21°26'45.42455"	P-151	4	82°32'21.75998"	21°25'07.76432"
P-122	4	82°31'24.89911"	21°26'40.82868"	P-152	4	82°32'14.97426"	21°25'07.76277"
P-123	4	82°31'30.34225"	21°26'13.08308"	P-153	4	82°32'08.60523"	21°25'07.88136"
P-124	4	82°31'33.50284"	21°26'07.85796"	P-154	4	82°32'07.33304"	21°25'01.68591"
P-125	4	82°31'36.57857"	21°26'02.10074"	P-155	4	82°32'07.41410"	21°24'55.22009"
P-126	4	82°31'39.33370"	21°25'56.86134"	P-156	4	82°32'08.58629"	21°24'48.81068"
P-127	4	82°31'42.89728"	21°25'53.85929"	P-157	4	82°32'08.54547"	21°24'42.32902"
P-128	4	82°31'46.46794"	21°25'50.10681"	P-158	4	82°32'08.31504"	21°24'35.82964"
P-129	4	82°31'46.54917"	21°25'49.16539"	P-159	4	82°32'08.11881"	21°24'30.95586"
P-130	4	82°31'24.89911"	21°26'40.82868"	P-160	4	82°32'08.11881"	21°24'30.95586"
P-131	4	82°31'28.49889"	21°26'35.26755"	P-161	4	82°32'07.92706"	21°24'24.99007"
P-132	4	82°31'31.39557"	21°26'29.48530"				
P-133	4	82°31'30.28156"	21°26'23.06936"				
P-134	4	82°31'29.11791"	21°26'16.82109"				
P-135	4	82°31'30.34225"	21°26'13.08308"				
P-136	4	82°31'46.54917"	21°25'49.16539"				
P-137	4	82°31'49.41670"	21°25'43.50163"				
P-138	4	82°31'55.53107"	21°25'41.54831"				
P-139	4	82°31'59.12424"	21°25'36.43425"				
P-140	4	82°31'59.09126"	21°25'36.21075"				
P-141	4	82°31'59.09126"	21°25'36.21075"				
P-142	4	82°31'56.23497"	21°25'30.73820"				
P-143	4	82°32'01.77048"	21°25'27.12921"				
P-144	4	82°32'07.10406"	21°25'24.86628"				
P-145	4	82°32'12.36282"	21°25'26.87441"				
P-146	4	82°32'18.98469"	21°25'25.68219"				
P-147	4	82°32'22.96655"	21°25'20.81167"				
P-148	4	82°32'24.85553"	21°25'17.32534"				
P-149	4	82°32'24.85553"	21°25'17.32534"				
P-150	4	82°32'26.03078"	21°25'11.09777"				

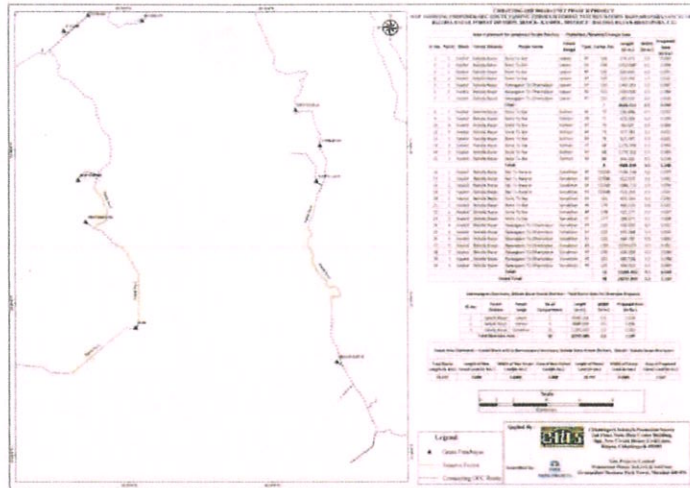


Divisional Forest Officer
Baloda Bazar Division Baloda Bazar

Chhattisgarh BharatNet Phase-II Project

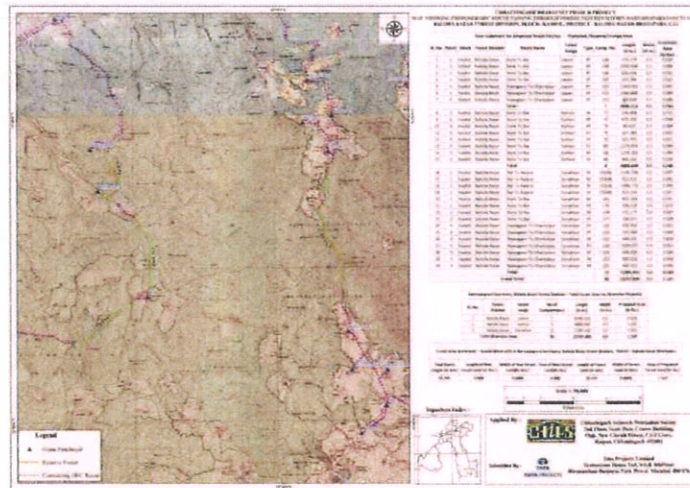
5.3. Geo-Referenced Maps of the Proposed Route (Annexure-3)

5.3.1. Map showing Geo-reference map of proposed OFC Route.



Geo-Referenced Maps of Forest Patched with in Barnawapara Sanctuary, Baloda Bazar Forest Division

5.3.2. Map showing proposed OFC Route on Toposheet map on 1:50,000 scale.



Geo-Referenced Toposheet Map of Forest Patched of Kasdol block of Barnawapara Sanctuary,
Baloda Bazar Forest Division

२०२४

Divisional Forest Officer
Baloda Bazar Division Baloda Bazar

