DGPS SURVEY OF APPROACH ROAD FROM ORCHHA – CHHOTE DONGAR ROAD TO MINING LEASE BOUNDARY

Chhotedongar Iron ore Mine

M/s. Shri. Bajarang Power & Ispat Ltd.,
Village-Narayanpur, District.- Narayanpur
State - Chhattisgarh

GOEL

2016-17

Prepared By:

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REPORT ON DGPS SURVEY
OF
APPROACH ROAD TO MINING LEASE BOUNDARY

of Chhotedongar Iron ore Mine of M/s SBPIL

(Approach Road area : 9.02 Ha)

Range - Chhote Dongar, Div. Narayanpur,

Dist. Narayanpur,

State Chhattisgarh.

For

M/s Shri Bajarang Power & Ispat Ltd.
June, 2016

Prepared by,

For Shri Bajrang Power & Ispat Ltd.

Director/Authorised Signatory

Soham Ferro Manganese Private Limited (SFMPL)
NKY Tower, Block No.16/17, Ajani Sq.Wardha Road,
Nagpur-440015

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M/S SOHAM FERRO MANGANESE PVT. LTD : NAGPUR, INDIA

ACKNOWLEDGEMENT

WE EXPRESS OUR SINCERE GRATITUDE TO THE OFFICIALS OF

M/S SHRI BAJARANG POWER & ISPAT LIMITED, RAIPUR.

FOR THEIR IMMENSE ASSISTANCE AND CO-OPERATION EXTENDED DURING THE COURSE OF DGPS SURVEY AND DICCUSSIONS, WITHOUT WHICH THIS REPORT COULD NOT HAVE BEEN PREPARED SUCCESSFULLY.

GOEL

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OUR EMPANELMENTS

We M/s. Soham Ferro Manganese Pvt. Ltd., would like to impress upon you that, our organization has been duly empanelled by **Govt. of Chhattisgarh, Ministry of Mines and Minerals**, Mahanadi Bhavan – Raipur – 492 0002 vide their notification dt. 10.11.2014 for carrying Differential Global Positioning Systems (DGPS) survey.

Our organization has been also duly empanelled by **Govt. of Maharashtra, Directorate of Geology and Mining** , Old Secretariat Building, Civil Lines, Nagpur vide their order bearing no. NO/MC/AUTHO/NOC/355 dt. 18.05.2011 for carrying Differential Global Positioning Systems (DGPS) survey against Circular No. 02/2010 dt. 06.04.2010 issued by M/s. Indian Bureau of Mines, Govt. of India, who have authorized us for preparing field maps using DGPS Instruments as per the directives mentioned in the said circular and for preparing cadastral maps / other maps vide order no. MC/AUTHO/NOC/355/2011/927 dt. 15.03.2011.

Our organization has been also duly empanelled by **Govt. of Jharkhand, Department of Mines** and Geology, Directorate of Geology, Engineers Hostel, 2nd Floor, Dhurwa – Ranchi. vide their letter bearing no. 1952 dt. 26.12.2014 for carrying Geo referencing and Cadastral Map as per Guide lines issued by IBM Letter No. 02/2010 dt. 06.04.2010 and Subsequent Guide Lines.

For Soham Ferro Manganese Pvt. Ltd.,

(Nitin .Y. Selukar)
Director.

SOHAM FERRO MAGNESE PVT. LTD.

OUR EMPANELMENTS

We M/s. Soham Ferro Manganese Pvt. Ltd., would like to impress upon you that, our organization has been duly empanelled by **Govt. of Chhattisgarh, Ministry of Mines and Minerals**, Mahanadi Bhavan – Raipur – 492 0002 vide their notification dt. 10.11.2014 for carrying Differential Global Positioning Systems (DGPS) survey and for carrying Geo referencing and Cadastral Map as per Guide lines issued by IBM Letter No. 02/2010 dt. 06.04.2010 and Subsequent Guide Lines.

For Soham Ferro Manganese Pvt. Ltd.,

(Nitin .Y. Selukar)
Director.

SOHAM FERRO MAGNESE PVT. LTD.

By Speed post

छत्तीसगढ़ शासन
खनिज साधन विभाग
मंत्रालय
महानदी भवन, नया रायपुर–492002

//अधिसूचना// 1010/2014

रायपुर, दिनांक नवम्बर 2014

क्रमांक एफ 7–14/2013/12: राज्य शासन एतद द्वारा चीफ कन्ट्रोलर ऑफ माइन्स भारतीय खान ब्यूरो नागपुर के परिपत्र क्रमांक 2/2010, दिनांक 06.4.2010 के पैरा–2 के बिन्दु–2 के तारतम्य में समस्त खनिजों के खनिज रियायतों के सीमा स्तम्भ का Differential Globle Positioning System(डीजीपीएस) का उपयोग करते हुए सर्वेक्षण करने के लिए तालिका में दर्शित संस्थानों को अधिमान्यता प्रदान करता है –

क्र.	एजेंसी का नाम एवं पता
1	2
1	M/S SHREERAM GEMICON (PVT.) LIMITED GEOLOGICAL AND MINING CONSULTANTS L-09, Songanga Colony, Seepat Road, Bilaspur (Chhattisgarh)
2	M/S SINHA MINING CONSULTANCY, GOA Office No. 9, D'Costa Commercial Apartment, Near Old Railway Station Gate, Malbhat, Margo - 403601, Goa-India
3	M/S SPATIAL PLANNING AND ANALYSIS RESEARCH CENTRE PVT. LTD. F-11, Infocity, Chandaka Industrial Estate, Bhubaneshwar, Orissa, India, Pin - 751024
4	M/S SIDDHARTH GEO CONSULTANTS, 21-3, First Floor Ramkund, Samta Colony, Behind Lifeworth Hospital, Raipur (Chhattisgarh) 492001
5	M/S SOHAM FERRO MANGANESE PVT. LTD. Block No. 16,17 Ground Floor N.K.Y. Tower, Anjani Sq. Wardha Road, Nagpur (Maharashtra)
6	M/S SAN SURVEY ENGINEERING, HOOGHLY(WB) Regd. Off. - 465, Jiban Pal Bagan, Karbala (West), P.O. & Dist. - Hooghly, West Bengal, Pin - 712103 Contact Office - Anjali Complex, Bankim Kanan, Chinsurah Station Road, Chinsurah, Hoogly, West Bengal -712102
7	M/S GEOTRAX INTERNATION SERVICES, HYDERABAD (TELANGANA) Plate No 156 & 157, Lokayuta Colony, Badangpet Nadergul, Hyderabad 500058, Telangana
8	M/S RAFT CONTRACTORS AND DESIGNERS, Plot No. D-36, Ground Floor, Koelnagar, Raurkela, Dist. Sundargarh, Orissa, Pin No. - 769014
9	M/S MICRONET SOLUTION, Bisesar House, Opp. HSSC Board Office, (P.B. 85 G.P.O.) Civil Line, Nagpur, Maharashtra - 440001
10	M/S BHARAT ALUMINIUM COMPANY LIMITED (BALCO) P.O. Balco Nagar Korba(C.G.), India, Pin 495684

2/ अधिमान्यता प्राप्त संस्थानों के लिए शर्तें –

2.1 The Survey Agency Shall Be responsible for the accuracy of the data collected and Survey.

2.2 Coordinates of boundry pillars shall be established in the World Geodetic System 1984 (WGS-84) Datum.

2.3 Each boundry pillar shall be surved using DGPS, at least 2 Hours observation for its ground position.

.....2

2.4 The maximum distance between any two successive pillars should not be more than 100 meter.

2.5 All corner pillar should be of pyramid shaped whith base of 1 meter and height of 2 meter and should be placed 1 mater above the ground and 1 meter below the ground.

2.6 Distance and bearing to the forward and backward pillars and latitudes and longitudes should be market on all the corner pillars.

2.7 डीजीपीएस सर्वे कार्य हेतु पारिश्रमिक का निर्धारण अधिमान्य प्राप्त संस्थान एवं खनिज रियायतधारी के मध्य आपसी समन्वय से किया जाएगा। किसी भी प्रकार का आपसी विवाद होने पर राज्य शासन उत्तरदायी नहीं होगा।

2.8 डीजीपीएस सर्वे कार्य के गुणवत्ता में कमी पाये जाने पर या किसी भी प्रकार की कार्य संबंधी शिकायत पाये जाने पर जांच उपरान्त राज्य शासन को यह अधिकार होगा कि उक्त अधिकृत एजेंसी की मान्यता किसी भी समय समाप्त की जा सकती है।

2.9 डीजीपीएस सर्वे के संबंध में भारतीय खान ब्यूरो/राज्य शासन द्वारा समय-समय पर जारी निर्देशों का पालन अधिमान्यता प्राप्त संस्थान को करना होगा।

2.10 राज्य शासन द्वारा जारी यह अधिमान्यता 03 वर्ष के लिए होगी। समयावधि समाप्ति से 03 माह पूर्व अधिकृत एजेंसी नवीनीकरण हेतु आवेदन कर सकेगा।

2.11 भारत सरकार एवं राज्य शासन द्वारा डीजीपीएस सर्वे के संबंध में समय-समय पर जारी निर्देशों का पालन किया जाना होगा।

3/ यह अधिमान्यता अधिसूचना के जारी होने की तिथि से 03 वर्ष के लिए होगी।

छत्तीसगढ़ के राज्यपाल के नाम से
तथा आदेशानुसार,

(सुबोध कुमार सिंह)
सचिव
छत्तीसगढ़ शासन
खनिज संसाधन विभाग

पृ. क्रमांक एफ 7-14/2013/12 रायपुर, दिनांक नवम्बर 2014
10 NOV 2014

प्रतिलिपि –

1 सचिव, भारत सरकार, खान मंत्रालय, शास्त्री भवन, नई दिल्ली
2 कंट्रोलर जनरल, भारतीय खान ब्यूरो, सेकण्ड फ्लोर, ए-ब्लॉक, इन्दिरा भवन, सिविल लाईन, नागपुर (महाराष्ट्र)
3 चीफ कन्ट्रोलर ऑफ माईन्स, भारतीय खान ब्यूरो, सेकण्ड फ्लोर, ए-ब्लॉक, इन्दिरा भवन, सिविल लाईन, नागपुर (महाराष्ट्र)
4 क्षेत्रीय खान नियंत्रक, भारतीय खान ब्यूरो, छटवां तल, बी एंड सी -ब्लॉक, इन्दिरा भवन, सिविल लाईन, नागपुर (महाराष्ट्र)
5 संचालक, भौमिकी तथा खनिकर्म, छत्तीसगढ़ ब्लॉक-4, द्वितीय तल, इन्द्रावती भवन, नया रायपुर
6 समस्त कलेक्टर, जिला ———————— छत्तीसगढ़

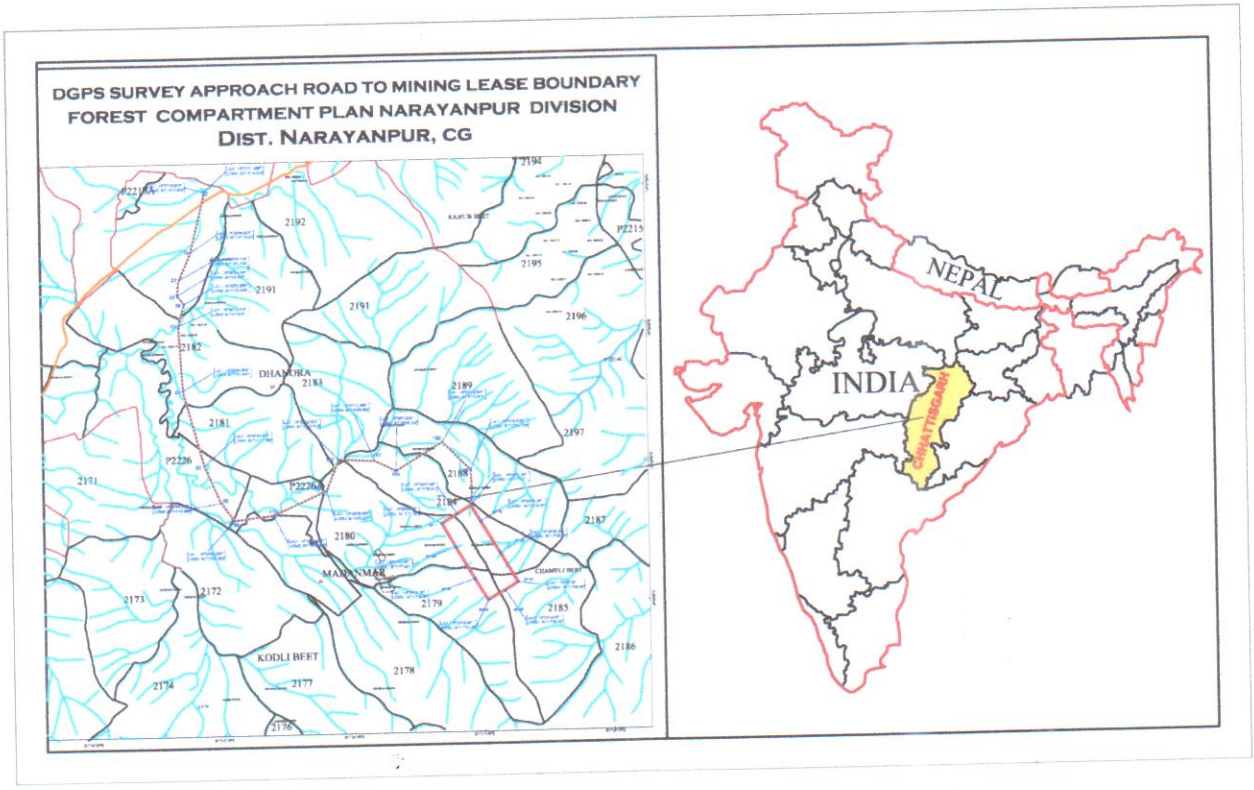
3

1) INTRODUCTION

Almost 20-25 Years highly regarded move toward record of growth & performance of well experienced professional on Goel Group boasts a team in Chhattisgarh State. Goel Group is economically Capable, Highly Resourceful & having good position & friendliness in the Corporate Sector.

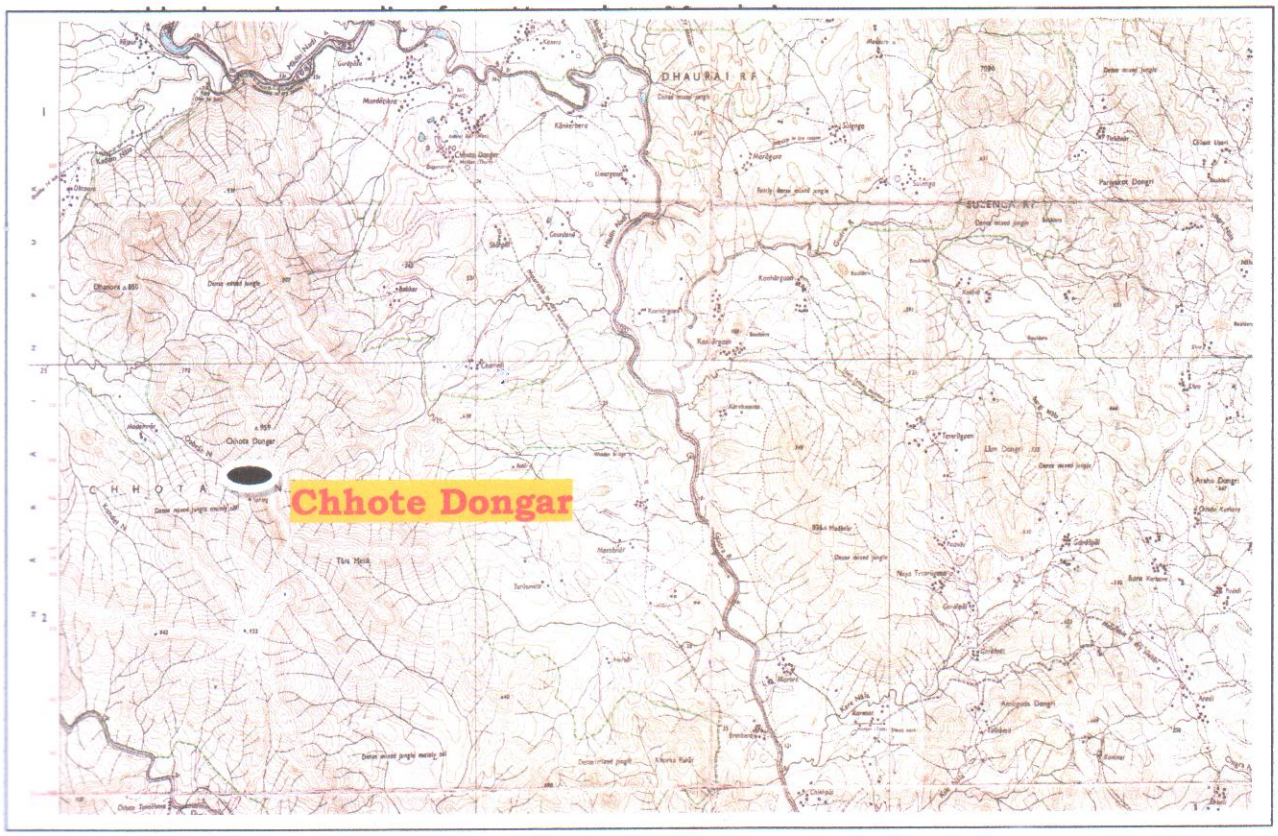
M/s. Shri Bajarang Power & Ispat Limited have received a Mining Lease area at chhotedongar for Iron ore exploitation. Iron ore is a necessary mineral required in the Steel plants. The work of DGPS survey Mandatory Central & State Government as per the reference to IBM Circular Indian Beuro of Mines (IBM) wide circular No. N/110913-3MP-90-CCOM-V-VII dated 6-4-2010. Directed the entire lease holder to carry out DGPS survey for all the lease boundary pillars as well as approach road connecting to ML Area. In view of the above Shri Bajarang Power & Ispat Limited vide their Work Order No. SBPIL/WO/16-17/2239 Dated 6th June 2016 has awarded work for approach road from nearest Chhattisgarh state road to Chhote Dongar ML area of M/s SBPIL of DGPS survey to our consultancy firm.

3) LOCATION AND ACCESSIBILITY



2) IDENTIFICATION AND DEMARCATION

The Shri Bajarang Power & Ispat Ltd. having a mining lease area and approach road from nearest CG state road to ML area of SBPIL forming part of forest compartment no. 2185, 2184, 2180, 2179, P2217A, 2182, 2181, P2226, P2226A & 2188 near village Chhote Dongar falls within Survey of India Toposheet No. 65 E 7/2 having co-ordinates of latitude 19°24'43.92"N and longitude 81 °17' 1.32"E. Located area "Chhote Dongar" which is nearest Dist.6.5 km from Dhaudai village. The mines area is approachable by Rajnandgaon-Narayanpur State Highway Road (SH-05) bifurcating from Dhaudai village, which is exactly 45 kms from narayanpur district. It is about 180 kms from Rajnandgaon railway station



4) SCOPE OF WORK

1.1 Survey of approach road area located in between Orchha – Chhote Dongar road to ML area of SBPIL by using DGPS (At least 2 hours observation) and fix up its ground position and preparation of Geo – referenced plan.

1.2 The Geo – referenced road map preparing using DGPS shall be superimposed on vectorised cadastral map.

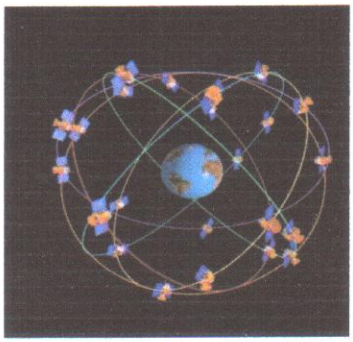
1.3 In case of forest areas, the boundary pillar shall be fixed on ground with reference to at least three permanent ground features in and around Mining Lease Area.

1.4 Purchase of latest high resolution satellite data (cloud free) derived from merging of Cartosat-2 and Liss – IV (Scale 1:5000) covering an area of 500 m from the Mining Lease boundary from NRSC and the geo – referenced map shall be superimposed on high resolution satellite image.

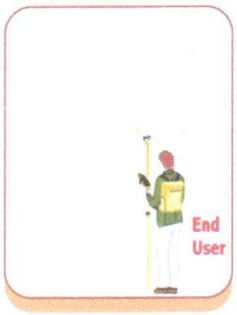
1.5 Preparation of soft copy of all above map in standard format and digitized map in shape file which can be imported by any GIS database.

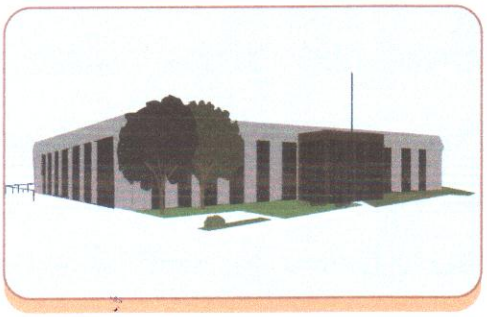
5. DIFFERENTIAL GLOBAL POSITIONING SYSTEM (DGPS)

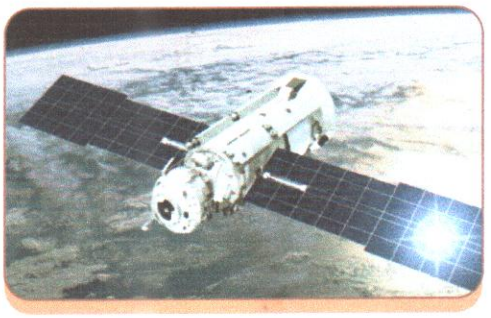
5. A] INTRODUCTION



The Global Positioning System (GPS) is a worldwide radio-navigation system formed from a constellation of 24 satellites and their ground stations. It consists of Three Segments:-







- **User Segment**
- **Control Segment**
- **Space Segment**

GPS uses these "man-made stars" as reference points to calculate positions accurate to a matter of meters. In fact, with advanced forms of GPS you can make measurements to better than a centimeter. Surveying/Mapping most commonly used now days, in a sense it's like giving every square meter on the planet a unique tackle.

5. B] ACCURACY & INSTRUMENT USED

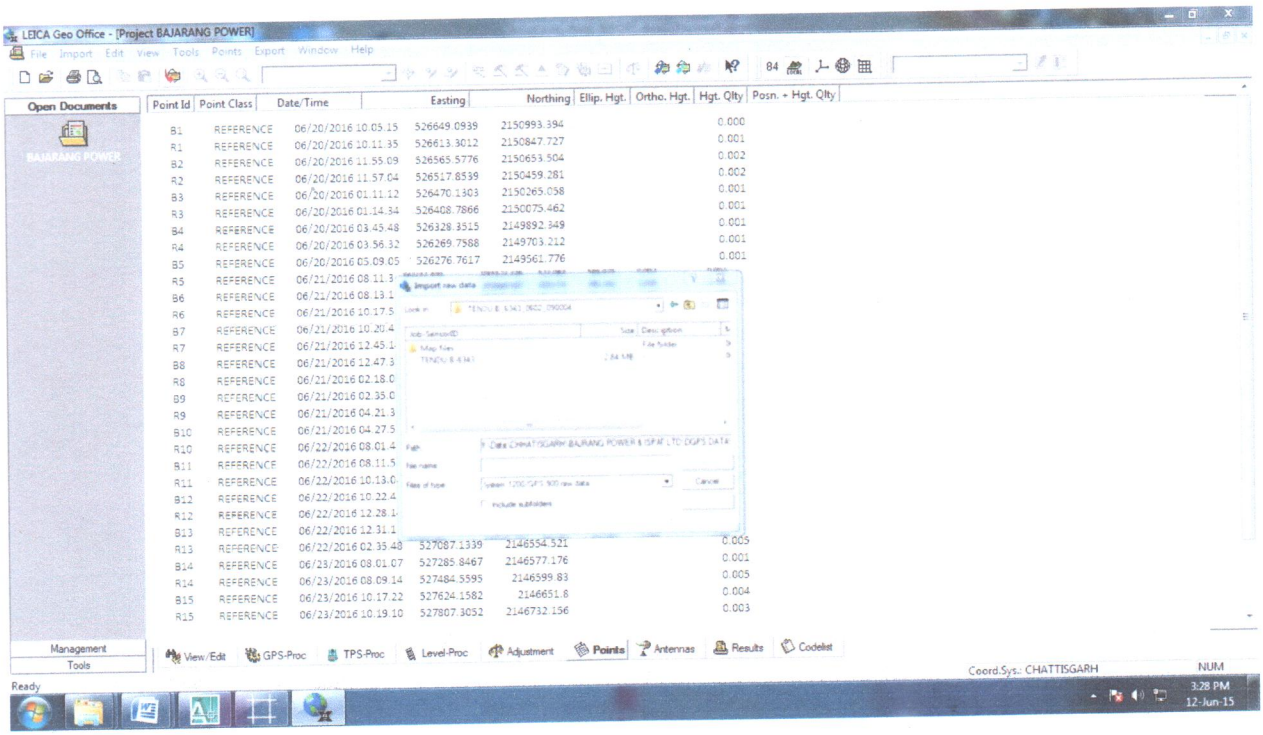
SFMPL Generally used Dual frequency Leica geo-office-GS05/06 DGPS equipments are to be used for all static mode of observation. By having the base station close to the area of interest there is minimum time lag and with the appropriate DGPS receiver, an accuracy of (+/-10mm) can be achieved. The accuracy of DGPS may be increased considerably by including a reference station (GPS receiver on a site with known coordinates). In the so-called post-processing method, the observations of the rover (GPS receiver) are then corrected so that, depending on the type of receiver, accuracies of a few decimeters or a few centimeters may be reached.

5. C] DATA PROCESSING IN LEICA GEO-OFFICE SOFTWARE

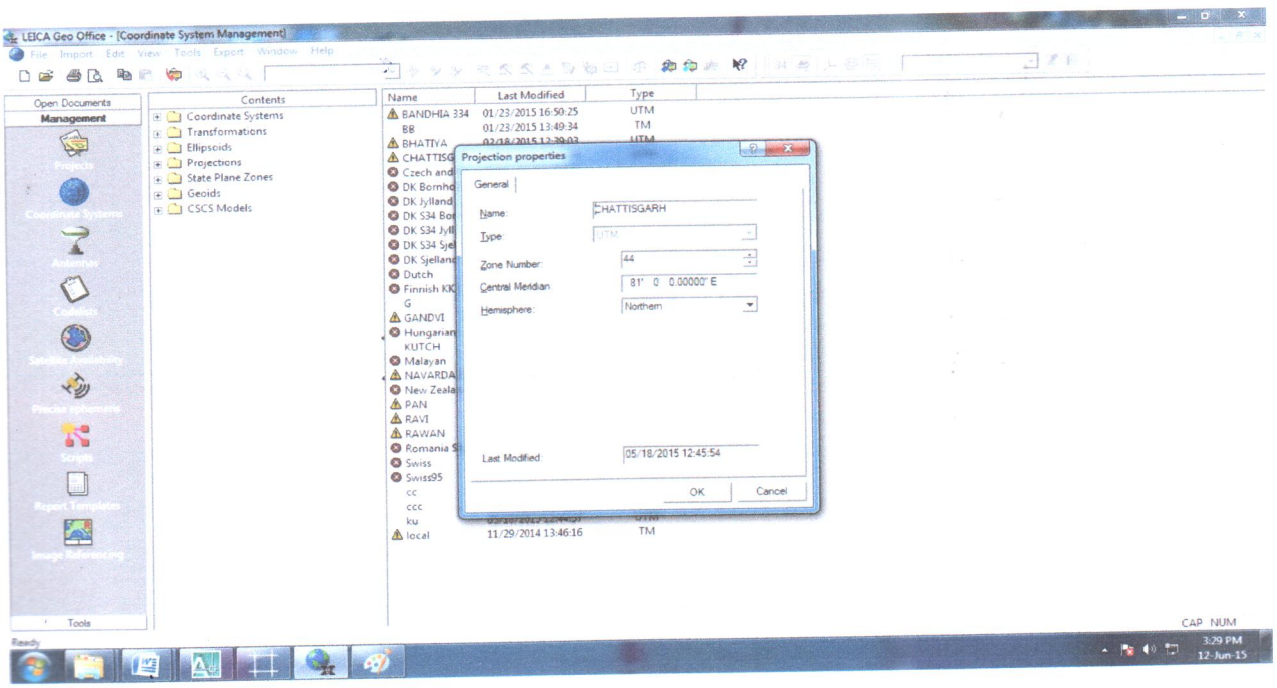
All the pillar coordinates were taken for two hours of reading and pillar points are used for georeferencing. The processed coordinates have been exported to Shape file from the Leica geo-office software. These co ordinates are imported in to GIS software and Georeferencing of cadastral map, lease map and LISS- IV image was carried out. The lease boundary was digitized using the processed coordinates of the pillars and georeferenced maps. These lease boundary was exported to shape file for the final submission as required by IBM.

Leica geo-office-GS05/06 antenna recorded field survey data are downloading in Leica Receiver as following steps:

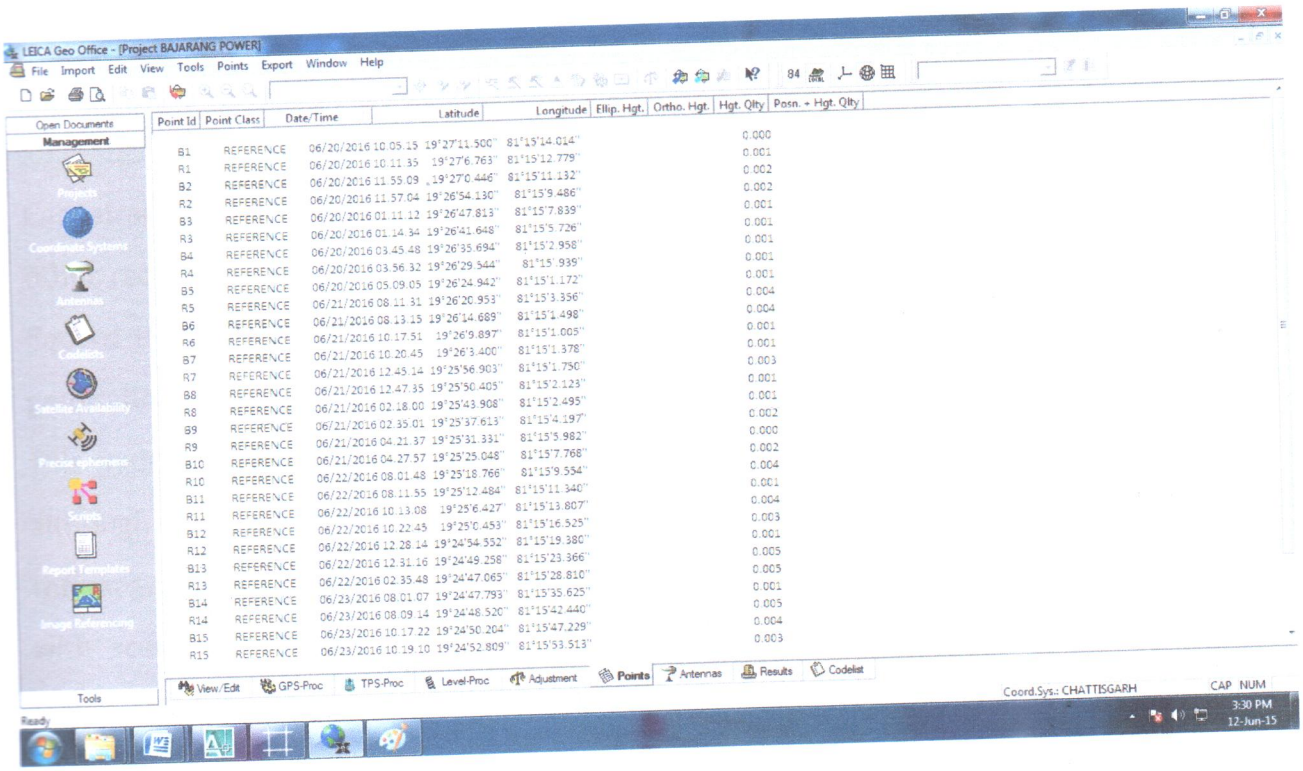
I] IMPORT



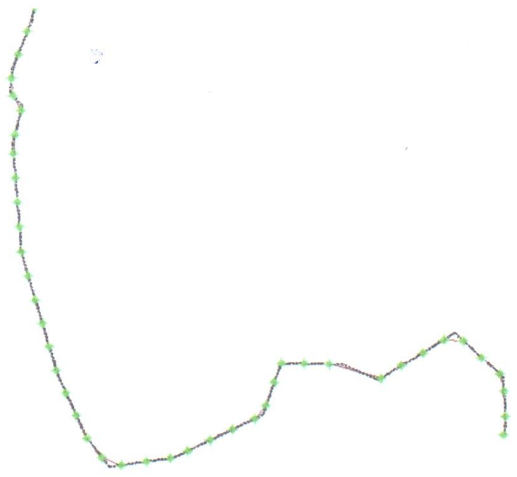
II] APPLYING PROJECTION SYSTEM



III] PROCESSING DATA



IV] POINT POSITION



6. METHODOLOGY ADOPTED FOR VECTORIZATION CADASTRAL MAP

6. A] INTRODUCTION OF VECTORIZATION CADASTRAL

Cadastral surveys are specially designed large scale surveys, some in conjunction with other records, which are linked to land ownership and property. In India Normally Land Record Department created a cadastral map on Tracing film or Cloth Paper. It is usually generating in most Common Scale Factor which is to be saying that 16"=1Mile (1:3960). This paper is very essential to the rural for it's village properties. The urban cadastral, although very vital needs a separate and detailed discussion. It's seen very older and shrinkage appearance quality. Receiving those maps to land record department to start with scanning in High Resolution scale and get converted into TIF format. AutoCAD Draftsmen digitize a map on his professional skilled with Different Colours, Layer, Polyline & Block Entities Etc. on this way generated a accurate scale map to help us the geo reference.

6. B] GEO REFERENCE VECTORIZATION CADASTRAL MAP

The term is commonly used in the geographic information systems field to describe the process of associating a physical map or raster image of a map with spatial locations. Geo reference means triangular Combination of DGPS Control points (Static Based), Topographic Survey and Vectorized Cadastral Map (Raster image). Geo referencing may be applied to any kind of object or structure that can be related to a geographical location, such as points of interest, roads, places, bridges, Forest munara or field bund. Geographic locations are most commonly represented using a coordinate reference system, which in turn can be related to a geodetic reference system such asWGS-84. There are various GIS tools available that can transform image data to some geographic control framework, like the commercial ArcMap, or ERDAS Imagine Recorded Survey data importing in Arc Map For instance, a DGPS device will Easting and nothing coordinates for a given point of

interest, effectively geo referencing this point. A geo reference must be a matchless identifier. In other words, there must be only one location for which a geo reference acts as the reference.

6. C] METHODOLOGY OF SATELLITE IMAGERY

Ideal recent satellite data are characterized by intersection of features, such as roads, canals or streams. Considering the high resolution of satellite data (IKONOS) has been used mostly Geo-Tiff Format image is preferred. Satellite data typically on basis of different forest band applicable it's depend upon mineral of that area.

The following list describes the main phases applied in the present study, for the creation of the land cover maps:-

- Preparation of Digital Map
- Satellite data selection
- Geo reference satellite image in WGS84 Coordinates
- Satellite data classification, Selection & Estimation WGS84 Coordinates.
- Satellite data interpretation and vectorization of the resulting units,
- Post Processing of DGPS Data, Validation of decision Observation Period
- Field checking

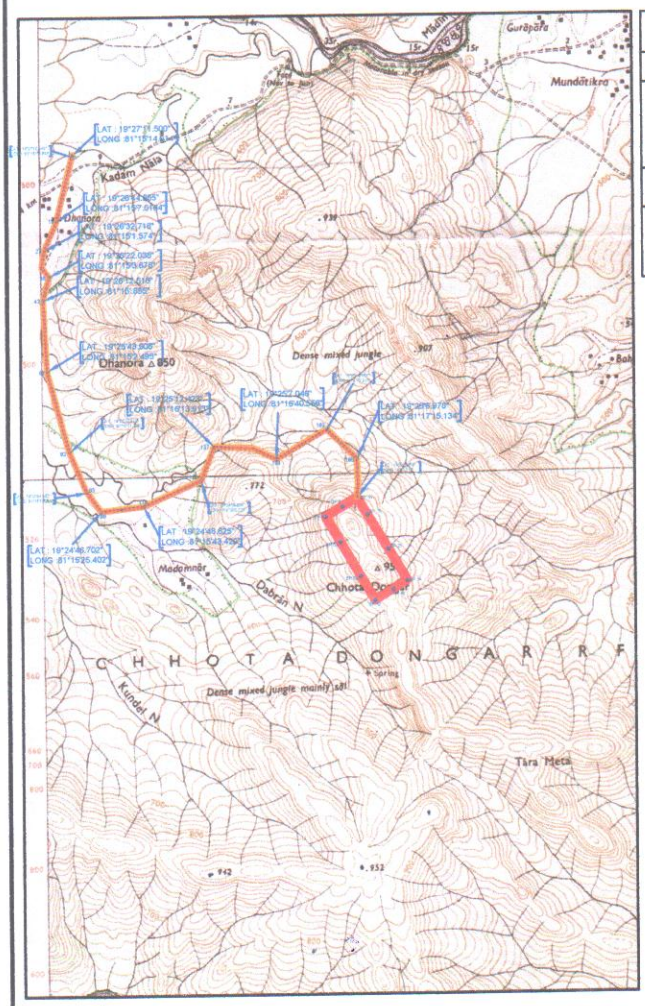
For this methodology most preferable software's are been used i.e. Erdas imagine 8.4, ArcGIS & Autocad Map.

7. PILLARS AND SITE PHOTOGRAPHS

SURVEY OF APPROACH ROAD AREA TO ML BOUNDARY OF M/S SBPIL OVERLAID ON SURVEY OF INDIA TOPOSHEET NO. - 65 E/7

NOT TO SCALE

MAP NO. - 2



LOCATION PLAN TOPOSHEET NO. - 65 E/7

INDEX

- Lease Boundary
- Fixed Boundary Pillers
- Base Point
- Trangulation Point

Chhotedongar Iron Ore Mine

M/S SHRI BAJARANG POWER & ISPAT LTD.

TAHSIL – NARAYANPUR, DIST. – NARAYANPUR, STATE – CHATTISGARH.

LEASE AREA :– 57.00 Ha.

LIST OF APPROACH ROAD CO-ORDINATE

POINT	EASTING	NORTHING	LATITUDE	LONGITUDE
1	526649.0939	2150993.394	19°27'11.500"	81°15'14.014"
2	526644.1276	2150973.182	19°27'10.843"	81°15'13.843"
19	526446.2684	2150167.947	19°26'44.655"	81°15'7.0164"
27	526288.134	2149800.793	19°26'32.718"	81°15'1.574"
32	526255.3416	2149587.869	19°26'25.792"	81°15'.439"
36	526349.943	2149472.63	19°26'22.038"	81°15'3.678"
43	526268.0611	2149179.899	19°26'12.518"	81°15'.855"
61	526317.1771	2148300.573	19°25'43.908"	81°15'2.495"
82	526589.6008	2147286.797	19°25'10.913"	81°15'11.786"
93	526811.7889	2146784.236	19°24'54.552"	81°15'19.380"
110	527513.1365	2146603.088	19°24'48.625"	81°15'43.420"
127	528236.1784	2146920.327	19°24'58.909"	81°16'8.229"
137	528401.2729	2147335.943	19°25'12.423"	81°16'13.913"
147	528885.0899	2147311.064	19°25'11.588"	81°16'30.502"
154	529178.5235	2147171.905	19°25'7.046"	81°16'40.556"
169	529803.7751	2147539.123	19°25'18.959"	81°17'2.017"
180	530186.9083	2147171.478	19°25'6.978"	81°17'15.134"

CERTIFICATE

Certified that this map is prepared by as based on cadastral map athorised by the State Govt. Coordinates of the Boundary Pillars shown on map are correct in our knowledge.

Prepared By :-

RAHUL RUTHE
A.G.M (PROJECT COORDINATOR)
B.E (CIVIL)

NITIN SELUKAR
MANAGING DIRECTOR
(MINING ENGINEER)

SURVEYED BY :

GOEL

M/S SHRI BAJARANG POWER & ISPAT LTD.

Regd. Office : Vill. Borjhara, Urla–Guma Road, Urla, Raipur 493221 (C.G.)

SURVEYED & PREPARED BY:

SOHAM FERRO MANGANEASE Pvt. Ltd.

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E-mail : sohamcad@rediffmail.com,
soham.feromagnese@gmail.com

Surveyed By :	Checked By :	Approved By :

Map : Survey of approach road area overlaid on Survey of India Toposheet No. - 65 E/07

Chhotedongar Iron Ore Mine

DGPS SURVEY APPROACH ROAD SHOWING CONNECTING
APPROACH ROAD BETWEEN ORCHHA - CHHOTE DONGAR ROAD
TO ML AREA OF M/S SBPIL

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MAP NO. - 1

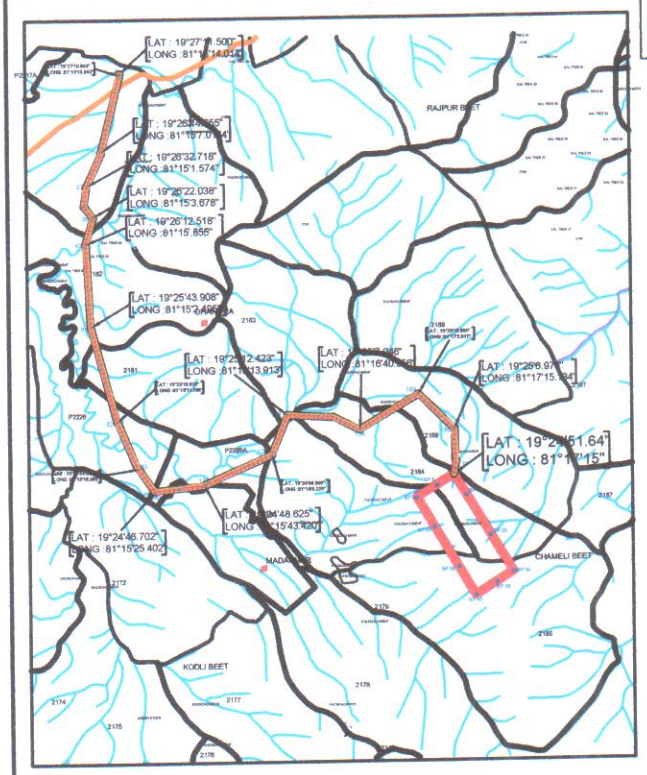
DGPS SURVEY APPROACH ROAD TO MINING LEASE BOUNDARY

INDEX

- Lease Boundary
- Fixed Boundary Pillers
- Base Point
- Trangulation Point

Chhotedongar Iron Ore Mine

M/S SHRI BAJARANG POWER & ISPAT LTD.
TAHSIL – NARAYANPUR, DIST. – NARAYANPUR, STATE – CHATTISGARH.
LEASE AREA :– 57.00 Ha.



LIST OF APPROACH ROAD CO-ORDINATE

POINT	EASTING	NORTHING	LATITUDE	LONGITUDE
1	526649.0939	2150993.394	19°27'11.500"	81°15'14.014"
2	526644.1276	2150973.182	19°27'10.843"	81°15'13.843"
19	526446.2684	2150167.947	19°26'44.655"	81°15'7.0164"
27	526288.134	2149800.793	19°26'32.718"	81°15'1.574"
32	526255.3416	2149587.869	19°26'25.792"	81°15'.439"
36	526349.943	2149472.63	19°26'22.038"	81°15'3.678"
43	526268.0611	2149179.899	19°26'12.518"	81°15'.855"
61	526317.1771	2148300.573	19°25'43.908"	81°15'2.495"
82	526589.6008	2147286.797	19°25'10.913"	81°15'11.786"
93	526811.7889	2146784.236	19°24'54.552"	81°15'19.380"
110	527513.1365	2146603.088	19°24'48.625"	81°15'43.420"
127	528236.1784	2146920.327	19°24'58.909"	81°16'8.229"
137	528401.2729	2147335.943	19°25'12.423"	81°16'13.913"
147	528885.0899	2147311.064	19°25'11.588"	81°16'30.502"
154	529178.5235	2147171.905	19°25'7.046"	81°16'40.556"
169	529803.7751	2147539.123	19°25'18.959"	81°17'2.017"
180	530186.9083	2147171.478	19°25'6.978"	81°17'15.134"

CERTIFICATE

Certified that this map is prepared by as based on cadastral map athorised by the State Govt. Coordinates of the Boundary Pillars shown on map are correct in our knowledge.

Prepared By :-

SOHAM FERRO MANGANESE PVT. LTD.

RAHUL RUTHE
A.G.M (PROJECT COORDINATOR)
B.E (CIVIL)

NITIN SELUKAR
MANAGING DIRECTOR
(MINING ENGINEER)

SURVEYED BY :

GOEL

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SURVEYED & PREPARED BY:

S

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soham.feromagnese@gmail.com

Surveyed By :	Checked By :	Approved By :

Map : DGPS Survey Approach Road showing connecting approach road between Orchha - Chhote Dongar road to ML area of M/s SBPIL

Chhotedongar Iron Ore Mine

SURVEY OF APPROACH ROAD AREA OVERLAID ON DGPS SURVEY OF SATELLITE IMAGERY PLAN

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NOT TO SCALE

MAP NO. - 3

DGPS SURVEY OF SATELLITE IMAGERY PLAN	
INDEX	
Lease Boundary	Fixed Boundary Pillers
Base Point	Trangulation Point
Chhotedongar Iron Ore Mine	
M/S SHRI BAJARANG POWER & ISPAT LTD. TAHSIL – NARAYANPUR, DIST. – NARAYANPUR, STATE – CHATTISGARH. LEASE AREA :– 57.00 Ha.	

LIST OF APPROACH ROAD CO-ORDINATE

POINT	EASTING	NORTHING	LATITUDE	LONGITUDE
1	526649.0939	2150993.394	19°27'11.500"	81°15'14.014"
2	526644.1276	2150973.182	19°27'10.843"	81°15'13.843"
19	526446.2684	2150167.947	19°26'44.655"	81°15'7.0164"
27	526288.134	2149800.793	19°26'32.718"	81°15'1.574"
32	526255.3416	2149587.869	19°26'25.792"	81°15'.439"
36	526349.943	2149472.63	19°26'22.038"	81°15'3.678"
43	526268.0611	2149179.899	19°26'12.518"	81°15'.855"
61	526317.1771	2148300.573	19°25'43.908"	81°15'2.495"
82	526589.6008	2147286.797	19°25'10.913"	81°15'11.786"
93	526811.7889	2146784.236	19°24'54.552"	81°15'19.380"
110	527513.1365	2146603.088	19°24'48.625"	81°15'43.420"
127	528236.1784	2146920.327	19°24'58.909"	81°16'8.229"
137	528401.2729	2147335.943	19°25'12.423"	81°16'13.913"
147	528885.0899	2147311.064	19°25'11.588"	81°16'30.502"
154	529178.5235	2147171.905	19°25'7.046"	81°16'40.556"
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SOHAM FERRO MAGNESE PVT. LTD.

RAHUL RUTHE
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MANAGING DIRECTOR
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SURVEYED BY :

GOEL

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E-mail : sohamcad@rediffmail.com,
soham.ferromagnese@gmail.com

Surveyed By :	Checked By :	Approved By :

Map : Survey of approach road area overlaid on DGPS Survey of Satellite Imagery Plan

LIST OF APPROACH ROAD COORDINATE

SR. NO.	POINT	EASTING	NORTHING	LATITUDE	LONGITUDE
1	1	526649.0939	2150993.394	19°27'11.500"	81°15'14.014"
2	2	526644.1276	2150973.182	19°27'10.843"	81°15'13.843"
3	3	526637.163	2150944.838	19°27'9.921"	81°15'13.602"
4	4	526625.2321	2150896.282	19°27'8.342"	81°15'13.191"
5	5	526613.3012	2150847.727	19°27'6.763"	81°15'12.779"
6	6	526601.3703	2150799.171	19°27'5.184"	81°15'12.367"
7	7	526589.4394	2150750.615	19°27'3.604"	81°15'11.956"
8	8	526577.5085	2150702.059	19°27'2.025"	81°15'11.544"
9	9	526565.5776	2150653.504	19°27'0.446"	81°15'11.132"
10	10	526553.6467	2150604.948	19°26'58.867"	81°15'10.721"
11	11	526541.7157	2150556.392	19°26'57.288"	81°15'10.309"
12	12	526529.7848	2150507.837	19°26'55.709"	81°15'9.897"
13	13	526517.8539	2150459.281	19°26'54.130"	81°15'9.486"
14	14	526505.923	2150410.725	19°26'52.551"	81°15'9.0746"
15	15	526493.9921	2150362.17	19°26'50.971"	81°15'8.663"
16	16	526482.0612	2150313.614	19°26'49.392"	81°15'8.251"
17	17	526470.1303	2150265.058	19°26'47.813"	81°15'7.839"
18	18	526458.1994	2150216.503	19°26'46.234"	81°15'7.428"
19	19	526446.2684	2150167.947	19°26'44.655"	81°15'7.0164"
20	20	526428.8953	2150121.24	19°26'43.136"	81°15'6.418"
21	21	526408.7866	2150075.462	19°26'41.648"	81°15'5.726"
22	22	526388.6778	2150029.684	19°26'40.159"	81°15'5.034"
23	23	526368.569	2149983.905	19°26'38.671"	81°15'4.342"
24	24	526348.4603	2149938.127	19°26'37.183"	81°15'3.650"
25	25	526328.3515	2149892.349	19°26'35.694"	81°15'2.958"
26	26	526308.2428	2149846.571	19°26'34.206"	81°15'2.266"
27	27	526288.134	2149800.793	19°26'32.718"	81°15'1.574"
28	28	526275.9602	2149752.826	19°26'31.158"	81°15'1.154"
29	29	526269.7588	2149703.212	19°26'29.544"	81°15'.939"
30	30	526263.5574	2149653.598	19°26'27.930"	81°15'.724"
31	31	526257.356	2149603.984	19°26'26.316"	81°15'.509"
32	32	526255.3416	2149587.869	19°26'25.792"	81°15'.439"
33	33	526276.7617	2149561.776	19°26'24.942"	81°15'1.172"
34	34	526308.487	2149523.13	19°26'23.683"	81°15'2.258"
35	35	526340.2122	2149484.484	19°26'22.424"	81°15'3.344"
36	36	526349.943	2149472.63	19°26'22.038"	81°15'3.678"
37	37	526340.6054	2149439.248	19°26'20.953"	81°15'3.356"

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38	38	526327.1365	2149391.096	19°26'19.387"	81°15'2.891"
39	39	526313.6676	2149342.944	19°26'17.821"	81°15'2.427"
40	40	526300.1987	2149294.792	19°26'16.255"	81°15'1.963"
41	41	526286.7299	2149246.641	19°26'14.689"	81°15'1.498"
42	42	526273.261	2149198.489	19°26'13.123"	81°15'1.034"
43	43	526268.0611	2149179.899	19°26'12.518"	81°15'.855"
44	44	526269.773	2149149.25	19°26'11.521"	81°15'.912"
45	45	526272.5615	2149099.328	19°26'9.897"	81°15'1.005"
46	46	526275.3499	2149049.406	19°26'8.273"	81°15'1.098"
47	47	526278.1384	2148999.484	19°26'6.648"	81°15'1.191"
48	48	526280.9269	2148949.562	19°26'5.024"	81°15'1.285"
49	49	526283.7154	2148899.639	19°26'3.400"	81°15'1.378"
50	50	526286.5039	2148849.717	19°26'1.775"	81°15'1.471"
51	51	526289.2923	2148799.795	19°26'0.151"	81°15'1.564"
52	52	526292.0808	2148749.873	19°25'58.527"	81°15'1.657"
53	53	526294.8693	2148699.951	19°25'56.903"	81°15'1.750"
54	54	526297.6578	2148650.029	19°25'55.278"	81°15'1.843"
55	55	526300.4462	2148600.106	19°25'53.654"	81°15'1.937"
56	56	526303.2347	2148550.184	19°25'52.030"	81°15'2.030"
57	57	526306.0232	2148500.262	19°25'50.405"	81°15'2.123"
58	58	526308.8117	2148450.34	19°25'48.781"	81°15'2.216"
59	59	526311.6235	2148400	19°25'47.143"	81°15'2.310"
60	60	526314.3886	2148350.495	19°25'45.533"	81°15'2.402"
61	61	526317.1771	2148300.573	19°25'43.908"	81°15'2.495"
62	62	526327.7941	2148251.917	19°25'42.325"	81°15'2.857"
63	63	526340.8844	2148203.661	19°25'40.754"	81°15'3.304"
64	64	526353.9748	2148155.405	19°25'39.184"	81°15'3.750"
65	65	526367.0651	2148107.149	19°25'37.613"	81°15'4.197"
66	66	526380.1554	2148058.893	19°25'36.043"	81°15'4.643"
67	67	526393.2458	2148010.637	19°25'34.472"	81°15'5.089"
68	68	526406.3361	2147962.381	19°25'32.901"	81°15'5.536"
69	69	526419.4265	2147914.125	19°25'31.331"	81°15'5.982"
70	70	526432.5168	2147865.869	19°25'29.760"	81°15'6.429"
71	71	526445.6071	2147817.613	19°25'28.190"	81°15'6.875"
72	72	526458.6975	2147769.357	19°25'26.619"	81°15'7.322"
73	73	526471.7878	2147721.101	19°25'25.048"	81°15'7.768"
74	74	526484.8781	2147672.845	19°25'23.478"	81°15'8.215"
75	75	526497.9685	2147624.589	19°25'21.907"	81°15'8.661"
76	76	526511.0588	2147576.333	19°25'20.337"	81°15'9.108"
77	77	526524.1491	2147528.077	19°25'18.766"	81°15'9.554"

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78	78	526537.2395	2147479.821	19°25'17.196"	81°15'10.001"
79	79	526550.3298	2147431.565	19°25'15.625"	81°15'10.447"
80	80	526563.4201	2147383.309	19°25'14.054"	81°15'10.894"
81	81	526576.5105	2147335.053	19°25'12.484"	81°15'11.340"
82	82	526589.6008	2147286.797	19°25'10.913"	81°15'11.786"
83	83	526608.9739	2147240.741	19°25'9.414"	81°15'12.448"
84	84	526628.8541	2147194.864	19°25'7.920"	81°15'13.128"
85	85	526648.7343	2147148.986	19°25'6.427"	81°15'13.807"
86	86	526668.6145	2147103.108	19°25'4.933"	81°15'14.487"
87	87	526688.4947	2147057.23	19°25'3.440"	81°15'15.166"
88	88	526708.3749	2147011.352	19°25'1.946"	81°15'15.845"
89	89	526728.2551	2146965.474	19°25'0.453"	81°15'16.525"
90	90	526748.1352	2146919.596	19°24'58.959"	81°15'17.204"
91	91	526768.0154	2146873.719	19°24'57.466"	81°15'17.883"
92	92	526787.8956	2146827.841	19°24'55.972"	81°15'18.563"
93	93	526811.7889	2146784.236	19°24'54.552"	81°15'19.380"
94	94	526840.912	2146743.593	19°24'53.229"	81°15'20.376"
95	95	526870.0351	2146702.95	19°24'51.905"	81°15'21.373"
96	96	526899.1582	2146662.307	19°24'50.581"	81°15'22.370"
97	97	526928.2813	2146621.664	19°24'49.258"	81°15'23.366"
98	98	526957.4044	2146581.021	19°24'47.934"	81°15'24.363"
99	99	526987.7775	2146543.194	19°24'46.702"	81°15'25.402"
100	100	527037.4557	2146548.858	19°24'46.884"	81°15'27.106"
101	101	527087.1339	2146554.521	19°24'47.065"	81°15'28.810"
102	102	527136.8121	2146560.185	19°24'47.247"	81°15'30.513"
103	103	527186.4903	2146565.849	19°24'47.429"	81°15'32.217"
104	104	527236.1685	2146571.512	19°24'47.611"	81°15'33.921"
105	105	527285.8467	2146577.176	19°24'47.793"	81°15'35.625"
106	106	527335.5249	2146582.839	19°24'47.975"	81°15'37.328"
107	107	527385.2031	2146588.503	19°24'48.156"	81°15'39.032"
108	108	527434.8813	2146594.167	19°24'48.338"	81°15'40.736"
109	109	527484.5595	2146599.83	19°24'48.520"	81°15'42.440"
110	110	527513.1365	2146603.088	19°24'48.625"	81°15'43.420"
111	111	527532.5847	2146611.621	19°24'48.901"	81°15'44.087"
112	112	527578.3715	2146631.71	19°24'49.553"	81°15'45.658"
113	113	527624.1582	2146651.8	19°24'50.204"	81°15'47.229"
114	114	527669.9449	2146671.889	19°24'50.855"	81°15'48.800"
115	115	527715.7317	2146691.978	19°24'51.507"	81°15'50.371"
116	116	527761.5184	2146712.067	19°24'52.158"	81°15'51.942"
117	117	527807.3052	2146732.156	19°24'52.809"	81°15'53.513"

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118	118	527853.0919	2146752.245	19°24'53.460"	81°15'55.084"
119	119	527898.8786	2146772.335	19°24'54.112"	81°15'56.655"
120	120	527944.6654	2146792.424	19°24'54.763"	81°15'58.227"
121	121	527990.4521	2146812.513	19°24'55.414"	81°15'59.798"
122	122	528036.2388	2146832.602	19°24'56.066"	81°16'1.369"
123	123	528082.0256	2146852.691	19°24'56.717"	81°16'2.940"
124	124	528127.8123	2146872.78	19°24'57.368"	81°16'4.511"
125	125	528173.599	2146892.87	19°24'58.019"	81°16'6.082"
126	126	528219.3858	2146912.959	19°24'58.671"	81°16'7.653"
127	127	528236.1784	2146920.327	19°24'58.909"	81°16'8.229"
128	128	528247.8671	2146949.752	19°24'59.866"	81°16'8.632"
129	129	528266.3255	2146996.22	19°25'1.377"	81°16'9.267"
130	130	528284.784	2147042.688	19°25'2.888"	81°16'9.903"
131	131	528303.2424	2147089.157	19°25'4.399"	81°16'10.538"
132	132	528321.7008	2147135.625	19°25'5.910"	81°16'11.173"
133	133	528340.1593	2147182.093	19°25'7.420"	81°16'11.809"
134	134	528358.6177	2147228.561	19°25'8.931"	81°16'12.444"
135	135	528377.0762	2147275.029	19°25'10.442"	81°16'13.080"
136	136	528395.5346	2147321.497	19°25'11.953"	81°16'13.715"
137	137	528401.2729	2147335.943	19°25'12.423"	81°16'13.913"
138	138	528435.6836	2147334.173	19°25'12.363"	81°16'15.093"
139	139	528485.6177	2147331.606	19°25'12.277"	81°16'16.805"
140	140	528535.5517	2147329.038	19°25'12.191"	81°16'18.517"
141	141	528585.4857	2147326.47	19°25'12.105"	81°16'20.229"
142	142	528635.4198	2147323.903	19°25'12.019"	81°16'21.941"
143	143	528685.3538	2147321.335	19°25'11.933"	81°16'23.653"
144	144	528735.2878	2147318.767	19°25'11.847"	81°16'25.366"
145	145	528785.2218	2147316.2	19°25'11.761"	81°16'27.078"
146	146	528835.1559	2147313.632	19°25'11.674"	81°16'28.790"
147	147	528885.0899	2147311.064	19°25'11.588"	81°16'30.502"
154	154	529178.5235	2147171.905	19°25'7.046"	81°16'40.556"
155	155	529200.178	2147184.623	19°25'7.458"	81°16'41.300"
156	156	529243.292	2147209.945	19°25'8.280"	81°16'42.779"
157	157	529286.4061	2147235.266	19°25'9.101"	81°16'44.259"
158	158	529329.5202	2147260.587	19°25'9.923"	81°16'45.739"
159	159	529372.6343	2147285.909	19°25'10.744"	81°16'47.219"
160	160	529415.7484	2147311.23	19°25'11.566"	81°16'48.699"
161	161	529458.8625	2147336.552	19°25'12.387"	81°16'50.179"
162	162	529501.9766	2147361.873	19°25'13.209"	81°16'51.658"
163	163	529545.0906	2147387.195	19°25'14.030"	81°16'53.138"

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164	164	529588.2047	2147412.516	19°25'14.852"	81°16'54.618"
165	165	529631.3188	2147437.838	19°25'15.673"	81°16'56.098"
166	166	529674.4329	2147463.159	19°25'16.495"	81°16'57.578"
167	167	529717.547	2147488.48	19°25'17.316"	81°16'59.058"
168	168	529760.6611	2147513.802	19°25'18.138"	81°17'.537"
169	169	529803.7751	2147539.123	19°25'18.959"	81°17'2.017"
170	170	529840.0798	2147507.691	19°25'17.935"	81°17'3.261"
171	171	529875.9803	2147472.889	19°25'16.801"	81°17'4.490"
172	172	529911.8808	2147438.087	19°25'15.667"	81°17'5.719"
173	173	529947.7812	2147403.286	19°25'14.532"	81°17'6.948"
174	174	529983.6817	2147368.484	19°25'13.398"	81°17'8.177"
175	175	530019.5822	2147333.682	19°25'12.264"	81°17'9.406"
176	176	530055.4827	2147298.881	19°25'11.130"	81°17'10.635"
177	177	530091.3831	2147264.079	19°25'9.996"	81°17'11.864"
178	178	530127.2836	2147229.277	19°25'8.862"	81°17'13.093"
179	179	530163.1841	2147194.476	19°25'7.727"	81°17'14.322"
180	180	530186.9083	2147171.478	19°25'6.978"	81°17'15.134"
181	181	530187.6257	2147154.534	19°25'6.427"	81°17'15.158"
182	182	530189.741	2147104.579	19°25'4.801"	81°17'15.228"
183	183	530191.8563	2147054.624	19°25'3.176"	81°17'15.297"
184	184	530193.9715	2147004.669	19°25'1.5510	81°17'15.367"
185	185	530196.0868	2146954.714	19°24'59.925"	81°17'15.437"
186	186	530198.2021	2146904.758	19°24'58.300"	81°17'15.506"
187	187	530200.3173	2146854.803	19°24'56.674"	81°17'15.576"
188	188	530196.9299	2146804.835	19°24'55.049"	81°17'15.457"
189	189	530189.4029	2146755.785	19°24'53.454"	81°17'15.196"
190	190	530182.1753	2146706.473	19°24'51.850"	81°17'14.946"

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