

**SCHEME FOR COMPENSATORY AFFORESTATION
OVER AN AREA OF 160.841 HECT. IN THE
VILLAGE KERAJODI UNDER KANKADAHAD
TAHASIL OF K.NAGAR EAST RANGE UNDER
DHENKANAL DIVISION.**

**AGAINST THE FOREST LAND USED BY
M/S. TATA STEEL LTD.
FOR KATAMATI IRON MINES OF IRON ORE
MINES IN KEONJHAR DISTRICT.**

**DHENKANAL FOREST DIVISION
DHENKANAL**

Compensatory Afforestation Scheme over 160.841 Ha of
Non-forest land identified in village Kerajodi under Kankadahad Tahasil
of Dhenkanal District against Diversion of Forest land for Katamati Iron
Mines of Iron ore mines in Keonjhar District.

by

M/s Tata Steel Ltd.

**SCHEME FOR COMPENSATORY AFFORESTATION OVER 160.841 HA IN NON-FOREST LAND
IN MOUZA-KERAJODI UNDER KANKADAHAD TAHASIL OF DHENKANAL DISTRICT BY
M/S TATA STEEL LTD. KEONJHAR DISTRICT.**

Introduction:

The M/S TATA Steel Ltd. has submitted a diversion proposal to the Divisional Forest Officer, Keonjhar Forest Division for Katamati Iron Mines of Iron ore mines in Keonjhar District for diversion of 160.841 Ha of forest land for non-forestry purpose.

Selection of Sites

As a matter of principle and as per guidelines of Forest (Conservation) Act, 1980 much efforts have been exerted to identify non-forest land for the purpose of Compensatory Afforestation. However, as per para 3.2 (iii) of guideline to the Forest (Conservation) Act, equivalent extent of non-forest land has been identified in Kankadahad Tahasil of Dhenkanal Dist. But while searching for such a piece of land 160.841 ha could be available as a part of a single patch compatible for raising plantation. Therefore, 160.841 ha has been selected for Compensatory Afforestation. The land schedule has been furnished below. This non forest land is located in K.Nagar East Range.

Tahasil	Village.	Khata No.	Plot No.	Area (in ha)	Kissam.
Kankadahad	Kerajodi	155	1	15.511	Parbat-I
			38	13.000	Parbat-I
			398	21.188	Parbat-I
			310	16.000	Parbat-I
			311	24.000	Parbat-I
			312	34.000	Parbat-I
			313	17.000	Parbat-I
			314	19.000	Parbat-I
			315	30.000	Parbat-I
			316	17.100	Parbat-I
			317	0.590	Parbat-I
			318	24.000	Parbat-I
			319	27.050	Parbat-I
			320	72.250	Parbat-I
			321	20.000	Parbat-I
			322	14.500	Parbat-I
395	32.250	Parbat-I			
Total				397.439 Ac or 160.841 Ha.	

- **Description of the existing vegetation**

The existing vegetation is of miscellaneous type like only bushes.

- **Soil & Topography**

The topography of area is undulating. But the depth of the soil is good being a vally and the existing vegetation indicates the PH value to be above 07, hence the soil is basic.

- **Temperature**

The average temperature varies from 13.5° C minimum in December to 45°C maximum in May.

- **Rainfall**

The annual rainfall varies from 1200 mm to 1500 mm. The maximum rainfall is received during the rainy season from July to September.

- **Objective of the Scheme**

The main objective of the scheme is to re-stock the non-forest land to be identified with mostly indigenous species with admixture of fuel wood, small timber, N.T.F.P., medicinal plants, bamboo etc. It also aims at defining the boundaries of the non-forest land with Barbed Wire Fencing and enforcing protection measures of the plantations by involving people around under JFM. It further seeks to dovetail suitable soil conservation measures with the afforestation works, so as to conserve soil and water for enrichment of the eco-system.

- **Item of works to be taken up**

To achieve the above objectives, the following item of works is mainly prescribed to be taken up.

- 1. Survey & Demarcation of boundary**

This work shall be taken up by the User Agency while arranging for advance possession/mutation of the non-forest land in favour of Forest department.

The boundary shall be surveyed with reference to the Village map and demarcated by posting RCC pillars of size **1.25m x 20 cm x 20cm** which shall be embedded at every corner/turning of boundary line. The pillars shall be embedded 0.625 meter deep in the ground with a foundation of 50 cm x 40 cm. Top of the pillar shall be kept slanting with the lower side facing outer side of the area. Numbering shall be done in the same sequence as done in the map, which should start from the north-western corner and proceed in a clock-wise direction. The demarcation of the land shall be done in presence of the local Revenue Inspector

and Range Officer or Forester to avoid future complication. As on date the land is free from encroachment and encumbrance and attempts will be kept in force to keep the land free from encroachment.

2. Planting and post-planting

Bald Hill Plantation over 160.841 ha shall be taken up in blanks with 1600 plants per hect. at a spacing of 2.5m x 2.5m.

3. Choice of species

As far as possible, indigenous species like, Bamboo, Sisoo, Gambhar, Neem, Asana, Arjun, Simaruba, Mango, etc. shall be planted. In areas subjected to heavily grazing incidences, some mix of Chakunda, Simaruba may be given that to on the periphery only.

4. Points of importance

While taking up plantation, the following vital points shall be taken up for consideration.

- All cares be taken to raise healthy seedlings of minimum 2' height. 10% extra of the required stock shall be raised to accommodate casualties both at the nursery stage as well as transportation of seedling to the site for planting. Complete 1 year seedlings shall be used in case of Bamboo, Sisoo, Asan, Arjun, Neem, Simaruba, Gambhari etc.
- Pitting shall invariably be done during February – April, i.e. before onset of monsoon. In hilly areas, pits shall be dug along the contours.
- Planting shall be done on the onset of monsoon and should not be delayed.
- Basal dose of 50 grams of NPK and 10 grams of Aldrin be applied at the time of planting for the growth of the plant and to avoid insect attack respectively.
- Causality replacement, weeding and soil working, application of fertilizer and insecticides shall be taken up as per the provisions in the cost-norm at the proper time.
- Engaging requisite watchers as per norm will be done who shall also take up tracing of inspection path and fire line and maintenance of fence as and when required. A temporary watcher shed be constructed at suitable place for proper upkeep of the plantation and for the watcher to take shelter during rains.

- All out efforts shall be taken to keep the plantation free from grazing, fire and other biotic interference.
- The cost norm for Bald hill is given below.
- This Plantation shall be maintained for 10 years to achieve the better rate of survivalist.

5. Soil and moisture Conservation Measures

As the area is in a valley soil conservation measures like stagard trench of size 0.5 mt x 0.5 m x 2 mt @ 60 Nos. / Ha. shall be constructed to observe rain water for the seedlings planted

6. Fencing.

To protect the plantation from grazing and other biotic interference, fencing shall be taken up over 7560 mtr. of periphery by Barbed wire fencing all around.

7. Monitoring and Evaluation

The scheme shall be executed and monitored by the Divisional Forest Officer, Dhenkanal Division from time to time. To facilitate this, the User Agency shall bear the cost of infrastructure required and shall provide also the infrastructural facilities.

8. Total cost of the Project

The total cost of the project will be **Rs. 6,23,08,500 /-**



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Dhenkanal Division

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Dhenkanal Division

**COST NORM FOR BALD HILL PLANTATION @ 1600 PLANTS PER HECTARE
(Labour cost @ 200/- per manday)**

1	Name of the Plantation.	BALD HILL PLANTATION.
2	No. of seedlings to be planted.	1600 Nos. per hect.
3	Spacing to be adopted.	2.5m x 2.5m
4.	Size of pits.	30cm x 30cm x 30cm
5	Wage rate.	Rs.200.00 per manday.
6.	Species to be planted.	Teak, Bamboo, Asan, Arjun, Neem, Mango, Simaruba, Sisoo
7.	<i>The user agency will pay the enhanced wage rate as and when required.</i>	

**COST NORM FOR BALD HILL PLANTATION @ 1600 PLANTS PER HECTARE
(Labour cost @ Rs 200/- per manday)**

PREPARATORY OPERATION (0TH YEAR)

Sl No.	Items of work	Preferable period of Execution	Manday	Labour Cost @ Rs 200/- per day	Material cost per hectare in Rs	Total Cost per hectare in Rs
1	2	3	4	5	6	7
	Survey and demarcation	June	2	400	0	400
2	Fencing i. For an average of 126 meters/ha @ Rs 56.57/- per meter for bamboo throne fencing (L:M=40:60) ii. To be strengthened by planting of bamboo and other seedlings in two rows. Bamboo to be planted at 2 meters spacing in staggered manner on two rows, and the rest of the species to be planted at ½ meter spacing along the two rows, the rows being 2m apart. Thus 500 plant (125 bamboo and 375 others) to be planted in two rows to cover 126 m of periphery/Ha by the vegetative fence (Bamboo seedling @ Rs 9.45 per seedling × 125 = Rs 1181.00, Agave seedling @ Rs 3.50 per seedling × 375 = Rs 1312.00)	June-Sept June-Sept	19 11	3800 2200	4280 2493	8080 4693
3	Pitting (1600 per ha) each pit- 45 cm ³	Nov-Dec	128	25600	0	25600

4	Soil and water conservation measure a) Staggered thence along the contour @ 300 per ha (2.5 m× 0.5m× 0.5m); digging of percolation pits @ 600 per ha in lieu of staggered trenches, gully plugging and Drainage line treatment, half moon trench on the uphill side of each planting pit (100 MD for staggered trench / percolation pits and 30 MD for gully plugging, drainage line treatment and half moon trench)	Sept-Nov	130	26000	0	26000
	(b) Site clearance- 8MD, alignment and staking of contour lines on ground, planting pits, contour trenches / percolation pits and check dam sites, etc.2 MD	July-Aug	10	2000	0	2000
5	Raising of seedling in poly bags (minimum 60 cm high) @ Rs 9.45/- seedling (Rs 6.67 in 0th year) part (1760 saplings to be raised for one hectare from january-march @ Rs 11739/-)	Oct-Mar	44	8800	2939	11739
	TOTAL 0th year		344	68800	9712	78512

PLANTING OPERATION (1st YEAR)

1	Cost of sapling (balance) from April-June/July @ Rs 2.78 per seedling for 1760 seedlings=Rs4893/-	April-July	21.5	4300	593	4893
2	Freshening of pits -64 MD, filling with fertile soil and farm yard manure (FYM) -24 MD, application of insecticide and planting of 60 cm tall sapling including carriage of plants- 21 MD	June-July	109	21800	0	21800
3	Cost of Fertile Soil 0.25 cft @ Rs 8 per cft/FYM 0.25 cft @ Rs 15 per cft per pit		0	0	9200	9200
4	Sowing of seeds on dug out earth of trench	June	6	1200	200	1400
5	Carriage- 6MD, planting including Casualty replacement -6 MD, fertilizer application -5 MD, 1 st weeding -7 MD, 2 nd weeding -5MD, soil working -7MD	July-Aug	36	7200	0	1400

6	Cost of fertilizer and insecticide (Granular Insecticide @ 5gms/plant @ Rs 80/- per kg = Rs 640.00, NPK 100 gms /plant in two doses @ Rs 24 per kg = 3840)		0	0	4480	4480
7	Repair and maintenance of bamboo fence including material cost	Aug-Oct	15	3000	2540	5540
8	Maintenance of soil and Moisture Conservation measures (20% of cost)	Oct-Dec	26	5200	0	5200
9	Closure to grazing fire and other biotic interference by engaging watch & ward	April-Mar	30	6000	0	6000
10	Fire tracing and control, display board construction, painting/ writing, other miscellaneous cost	Jan-Feb	10	2000	360	2360
	TOTAL 1st Year		253.5	50700	17373	68073

MAINTENCE OPERATION (2nd YEAR)

1	Casualty replacement – 6 MD including seedling cost @ Rs 9.45 per seedling and its transportation	June-July	10	2000	1512	3512
2	Soli working -7 MD, 1st weeding-6 MD, 2nd weeding - 6MD and fertilizer application - 4 MD	Aug-Oct	23	4600	0	4600
3	Cost of fertilizer @ 50 gms NPK per plant @ Rs 24/- per kg for 1600 plants = Rs 1920.00 Insecticide @ 5 gm per plant for 160 nos. of plants @ Rs 80 per kg = Rs 64.00		0	0	1984	1984
4	Repair and maintenance of bamboo fence including material cost	Aug-Oct	15	3000	2540	5540
5	Maintenance of Soil and Moisture Conservation measure (20 % of cost)	Aug-Oct	26	5200	0	5200
6	Fire tracing and control and other miscellaneous cost	Feb-Mar	10	2000	0	2000
7	Closure to grazing, fire and other biotic interference by engaging watch and ward	April-Mar	30	6000	0	6000
	TOTAL 2nd Year		114	22800	6036	28836

MAINTENANCE OPERATION (3rd YEAR)

1	Repair and maintenance of fence-15 MD/ (in case of barbed wire fencing Rs 9000/- for repair), SMC measure (Renovation)-26 MD and maintenance of plantation - 14MD as per requirement	April-Mar	55	11000	500	11500
2	Closure to grazing, fire and other biotic interference by engaging watch and ward	April-Mar	18	3600	0	3600
TOTAL 3rd Year			73	14600	500	15100

MAINTENANCE OPERATION (4th YEAR)

1	Repair and maintenance of fence -13MD / no maintenance in case of barbed wire fencing, SMC measure -21 MD and maintenance of plantation -14 MD	April-Mar	48	9600	500	10100
2	Closure to grazing, fire and other biotic interference by engaging watch and ward	April-Mar	18	3600	0	3600
TOTAL 4th Year			66	13200	500	13700

MAINTENANCE OPERATION (5th YEAR)

1	Repair and maintenance of fence -13MD / no maintenance in case of barbed wire fencing, SMC measure -21 MD and maintenance of plantation -14 MD	April-Mar	48	9600	500	10100
2	Closure to grazing, fire and other biotic interference by engaging watch and ward	April-Mar	18	3600	0	3600
TOTAL 5th Year			66	13200	500	13700

MAINTENANCE OPERATION (6th YEAR)

1	Repair and maintenance of fence -13MD / no maintenance in case of barbed wire fencing, SMC measure -21 MD and maintenance of plantation -14 MD	April-Mar	48	9600	500	10100
2	Closure to grazing, fire and other biotic interference by engaging watch and ward	April-Mar	18	3600	0	3600
TOTAL 6th Year			66	13200	500	13700

MAINTENANCE OPERATION (7th YEAR)

1	Repair and maintenance of fence -13MD / no maintenance in case of barbed wire fencing, SMC measure -21 MD and maintenance of plantation -14 MD	April-Mar	48	9600	500	10100
2	Closure to grazing, fire and other biotic interference by engaging watch and ward	April-Mar	18	3600	0	3600
TOTAL 7th Year			66	13200	500	13700

MAINTENANCE OPERATION (8th YEAR)

1	Repair and maintenance of fence -13MD / no maintenance in case of barbed wire fencing, SMC measure -21 MD and maintenance of plantation -14 MD	April-Mar	48	9600	500	10100
2	Closure to grazing, fire and other biotic interference by engaging watch and ward	April-Mar	18	3600	0	3600
TOTAL 8th Year			66	13200	500	13700

MAINTENANCE OPERATION (9th YEAR)

1	Repair and maintenance of fence -13MD / no maintenance in case of barbed wire fencing, SMC measure -21 MD and maintenance of plantation -14 MD	April-Mar	48	9600	500	10100
2	Closure to grazing, fire and other biotic interference by engaging watch and ward	April-Mar	18	3600	0	3600
TOTAL 9th Year			66	13200	500	13700

MAINTENANCE OPERATION (10th YEAR)

1	Repair and maintenance of fence -13MD / no maintenance in case of barbed wire fencing, SMC measure -21 MD and maintenance of plantation -14 MD	April-Mar	48	9600	500	10100
2	Closure to grazing, fire and other biotic interference by engaging watch and ward	April-Mar	18	3600	0	3600
TOTAL 10th Year			66	13200	500	13700


Divisional Forest Officer
Dhenkanal Division

ESTIMATE FOR BARBED WIRE FENCING
(PERIMETER 14.61 KM)

Estimate for 1 kilometer (Spacing 2.5 mtr + 10% for corner support)

No of pillar Required 440 Nos.	UNIT	RATE / UNIT	AMOUNT (IN RS.)
Cost of 1 pillar	440	350	1,54,000/-
Transportation charges	440	35	15,400/-
Cost of base fixing (CC grunting 1' x 1' x 1')	440 Cft.	60	26,400/-
Cost of fixing barbed wire @ 20 U/S + 10 skill			7000/-
Cost of barbed wire (1Qntl) @ 8,500/-			
Cost of barbed wire (5+2)strand (5,000+ 2560 meter)			
7560 mtrs or 14 Qntls			1,19,000/-
Total cost for 1 km			3,21,860/-
Maintenance 5% per annum			16,093/- or 16,100/-
Maintenance for 4 year			64,400/-
Provision of Gate 02 Nos. per KM @ Rs. 5000/- gate			10,000/-
TOTAL			3,96,260/-

Per km of Rs. 3,96,260 x 14.61 Km = Rs. 57,89,358.6 or 57,89,360 /-


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TOTAL FINANCIAL OUTLAY OF THE SCHEME

ABSTARCT

Sl. No	Year	Man days	Labour Cost (Rs)	Material Cost (Rs)	Total (Rs)
1	0th Year	344	68800	9712	78512
2	1st Year	253.5	50700	17373	68073
3	2nd Year	114	22800	6036	28836
4	3rd Year	73	14600	500	15100
5	4th Year	66	13200	500	13700
6	5th Year	66	13200	500	13700
7	6th Year	66	13200	500	13700
8	7th Year	66	13200	500	13700
9	8th Year	66	13200	500	13700
10	9th Year	66	13200	500	13700
11	10th Year	66	13200	500	13700
		1246.5	249300	37121	286421
12	TOTAL	286421×160.841			4,60,68,240 /-
13	10 % M & E				46,06,900/-
14	G. Total				5,06,75,140/-
15	Cost of Barbed Fencing aver 7560 mtr @ per 3,96, 260 Km for 14.61 KM				57,89,360 /-
16	Trench (14.61 Kms) @ 4,00,000 per Km				58,44,000/-
	G. Total				6,23,08,500 /-

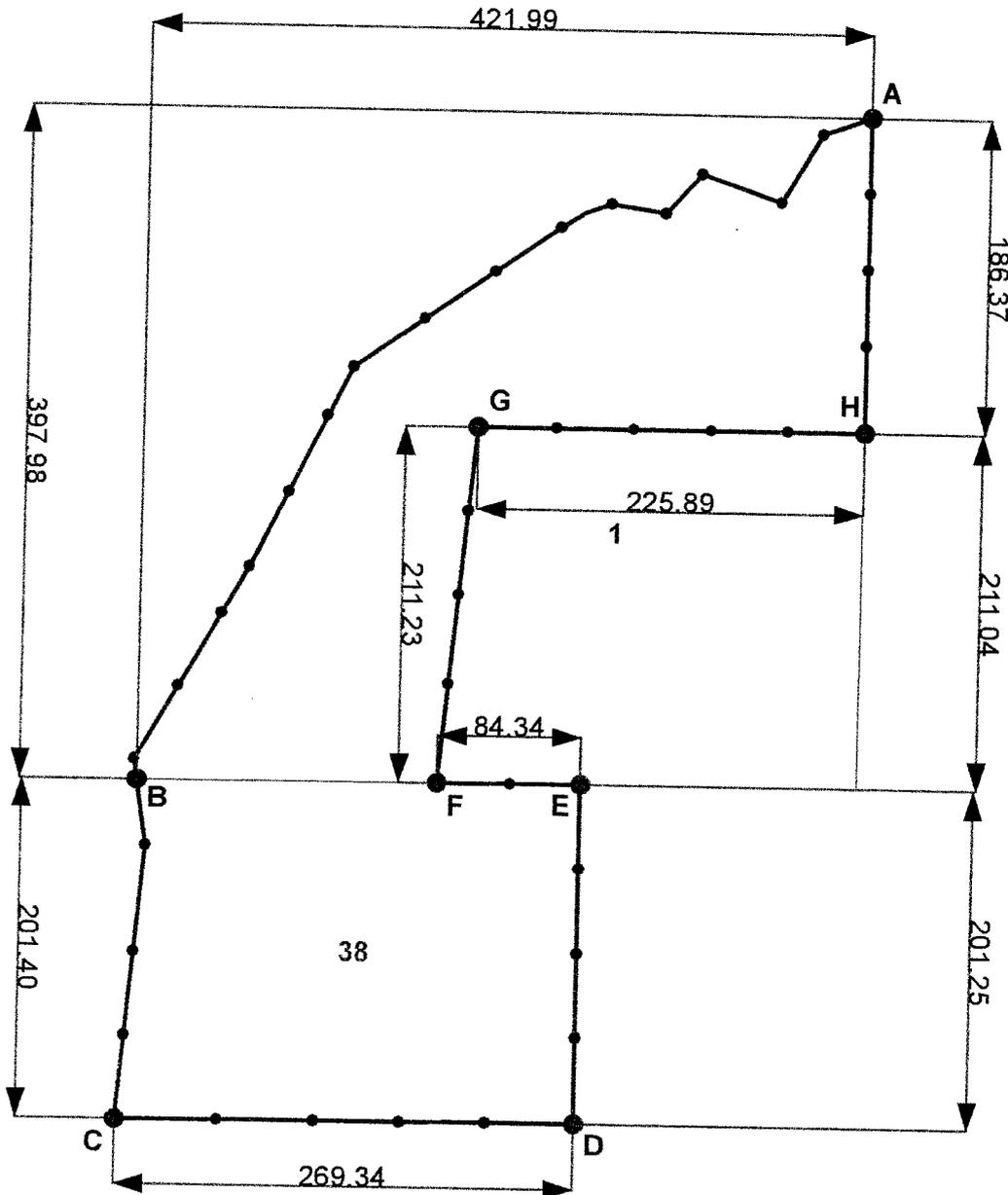
(Rupees Six Crores Twenty Three Lakhs Eight Thousand Five Hundred) Only.


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Dhenkanal Division
Divisional Forest Officer
Dhenkanal Division

MAP SHOWING THE NON FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION
 IN KERAJODI VILLAGE UNDER KANKADAHAD TAHASIL IN DHENKANAL DISTRICT,
 OVER 160.838 HA FOR KATAMATI IRON MINES OF TATASTEEL LTD AT KEONJHAR DISTRICT, ODISHA (Area 1)



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Legend

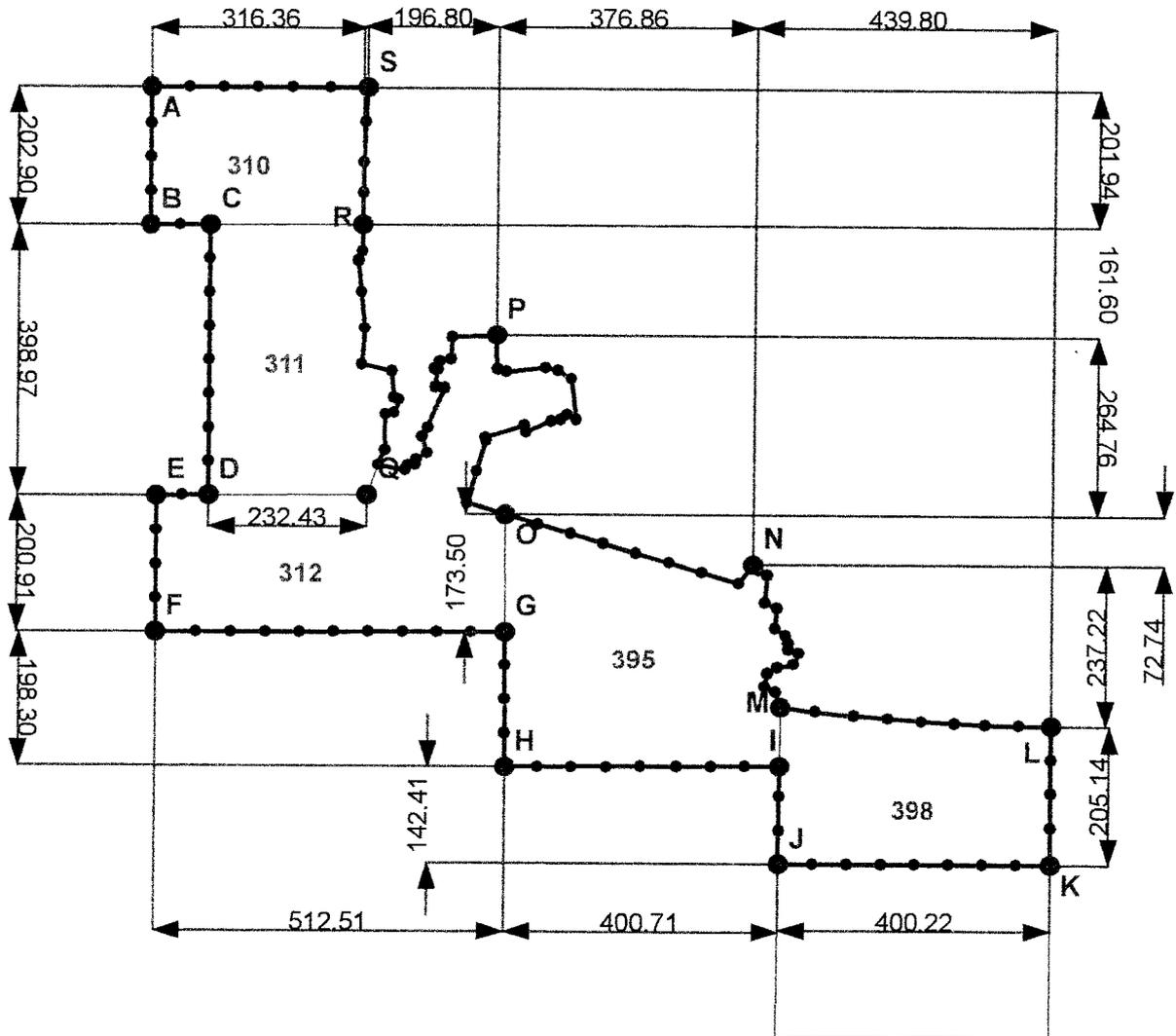
- Corner Pillars
- Cement Pillars
- ▭ Proposed Area (Perimeter - 2.02 KM)
- ▭ Plot Boundary Line

Binod Chandra Mishra
Binod Chandra Mishra
 HEAD-LAND
 LAND ACQUISITION AGENCY
 TATA STEEL

[Signature]
DFO
 Divisional Forest Officer
 Dhenkanal Division

MAP SHOWING THE NON FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION
 IN KERAJODI VILLAGE UNDER KANKADAHAD TAHASIL IN DHENKANAL DISTRICT,
 OVER 160.838 HA FOR KATAMATI IRON MINES OF TATASTEEL LTD AT KEONJHAR DISTRICT, ODISHA (Area 2)

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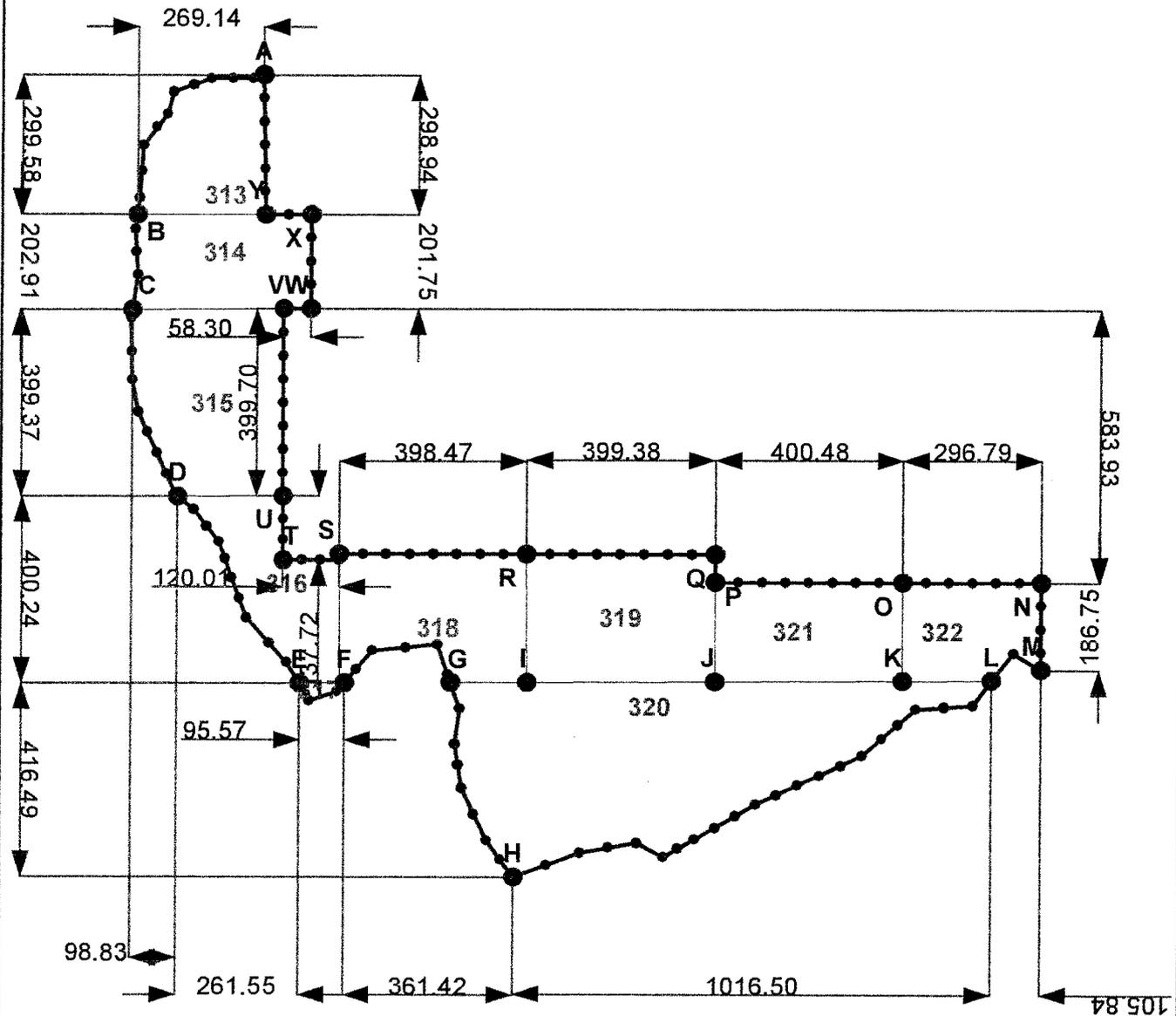
- Corner Pillars
- Cement Pillars
- Proposed Area (Perimeter - 5.73 KM)
- Plot Boundary Line

Binod Chandra Mishra
 User Agency
Binod Chandra Mishra
 HEAD-LAND
 AND ACQUISITION, RM DIVISION
 TATA STEEL

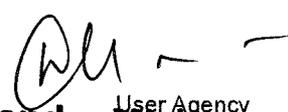
[Signature]
 DFO
 Divisional Forest Officer
 Dhenkanal Division

MAP SHOWING THE NON FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION
 IN KERAJODI VILLAGE UNDER KANKADAHAD TAHASIL IN DHENKANAL DISTRICT,
 OVER 160.838 HA FOR KATAMATI IRON MINES OF TATASTEEL LTD AT KEONJHAR DISTRICT, ODISHA (Area 3)

N
 1:13,000



- Legend**
- Corner Pillars
 - Cement Pillars
 - Proposed Area (Perimeter - 6.86 KM)
 - Plot Boundary Line


Anil Chandra Mishra
 User Agency
HEAD-LAND
AND ACQUISITION, RM DIVISION
TATA STEEL


 DFO
 Divisional Forest Officer
 Dhenkanal Division

**LAND SUITABILITY CERTIFICATE BY DIVISIONAL FOREST
OFFICER, DHENKANAL (T) DIVISION**

This is to certify that 160.841 ha. land bearing Survey No./ Compartment Khata No.155, Plot No. 1, 38,398,310,311,312,313,314,315,316,317,318,319,320,321,322 & 395 of Kissam Parbat-I of village Kerajodi of Tahasil Kankadahad, District Dhenkanal identified for Compensatory Afforestation is suitable for plantation from management point of view and is free and all sorts of encumbrances and encroachments.

Place: Dhenkanal
Date 25/07/2016


Divisional Forest Officer
Dhenkanal Division

Official Seal.....

Divisional Forest Officer
Dhenkanal Division