

## **SCHEME FOR COMPENSATORY AFFORESTATION**

**In Rivolkona RF over 30 Ha of degraded forest land in  
lieu of Diversion of 14.661 ha of Forest land for 132 KV  
transmission line from 220/132/33 KV Grid Sub-Station  
Therubali to RTSS Bhalumaska of M/S- OPTCL, Rayagada**

**( Block Planataion 30 ha @ 1000 plants /ha)**

**RAYAGADA FOREST DIVISION, RAYAGADA.**

**Full Title of the Project: - Construction of 132 KV Transmission Line from existing 220/132/33 KV Grid Sub - Station at Therubali to 132/25 KV switch yard of RTSS Bhalumaska in Rayagada District, Odisha.**

**File No.: - FP / OR / TRANS / 39618 / 2019.**

**Date of Proposal:- 16.08.2019.**

**CHECK LIST SERIAL NUMBER: 18**

**"SCHEME FOR COMPENSATORY AFFORESTATION"**

Detail scheme for Compensatory Afforestation to be carried out in lieu of 14.661 ha. of forest area proposed to be diverted for **construction of OPTCL 132 KV 2 phase Transmission Line from existing 220/132/33 KV Grid Sub - Station at Therubali to 132/25 KV switch yard of RTSS Bhalumaska in Rayagada District, Odisha.**

**1. INTRODUCTION :-**

The Odisha Power Transmission Corporation Limited (OPTCL) has proposed to construct 132 KV Transmission line from Therubali Grid Sub-Station to RTSS Bhalumaska, which passes through 31 villages in Kolnara&KalyansinghpurTahasils and Ribalkana Reserved Forest of Rayagada District. The total proposed project area comprises of 79.845 ha, which includes 14.661 ha of forest land and 65.184 ha. of non-forest land (Govt. = 19.221ha & Private = 45.963 ha). The Compensatory Afforestation (C.A.) scheme will be applicable over 29.322 ha say 30.00 ha of degraded forest land i.e. twice in extent of the 14.661 ha of the forest area, proposed to be diverted, as per point 2.8 (ii) of the guide line 2019 issued by Gol; MoEF& CC of FC Act 1980 and Forest (Conservation) Rule 2003. Therefore, the C.A. Scheme for raising 30,000 plants @ 1000 Plants/ ha is to be prepared for Block plantation.

The continuance of supply of electricity to the Rail way department is necessitated for local as well as for National benefit. Hence, the project required to be established by spending Rs.21, 35, 92, 689. 00 (Rupees Twenty-One Crore Thirty-Five Lakh Ninety-Two Thousand Six Hundred Eighty-Nine only), which has been sanctioned by OPTCL, Sambalpur vide L. No. SGMCON-II/ RTSS Bhalumaska/ 791 Dtd. 18.04.2016.

**2. DETAILS OF DEGRADED FOREST LAND:-**

**a) Location:**

The degraded forest land over 30.00 ha allotted for Compensatory Afforestation can accommodate 1,000 seedlings per ha. in Ribalkana Reserved Forest of Sikarpai forest section and Kalyansinghpur Forest Range under Rayagada Forest Division, which has been superimposed on Survey of India Topo Sheet No. E44/F7 bounded by Latitude **19°17'11.112" N** to **19°17'30.552" North** and Longitude **83°21'17.496 E** to **83°21'49.500" East.**

<b>District :</b>	Rayagada.
<b>Name of Forest Division:</b>	Rayagada.
<b>Tahasil:</b>	Kalyansinghpur.
<b>Forest Section/ Range:</b>	Sikarpai/ Kalyansinghpur.
<b>Name of R.F. allotted for C.A:</b>	Ribalkana Reserved Forest.
<b>Nearest human habitation:</b>	Sharapali at 2.00 Km.
<b>Allotted area for C.A:</b>	30.00 ha.

**b) Accessibility:**

The Compensatory land area can be approached easily in all seasons. The above C.A. land area is situated at a distance of about 20 KMs from Kalyansinghpur town & about 17 KMs from Rayagada, the district head quarter as well as from Rayagada Railway station.

**c) Existing Vegetation:**

The proposed site for Block plantation is an open space with few Mahul trees at places. The available growth is degraded due to biotic pressure like lopping, grazing and fire wood collection. As far as possible, care shall be taken to select indigenous species for plantation, which are associates of local species.

**3. PHYSIOGRAPHY & DRAINAGE:**

The area represents a little undulated and gently sloppy topography. The maximum elevation of the area is at the northern part and minimum at the southern part. The ground slopes in the NW - SE direction. The centre portion of the area seems to be more flat than other parts, whereas, southern part of the lease area represents a mild sloping topography having a small mound at the eastern side. North - South trending nala are observed and are joined with the main seasonal nala - "Bilamada" in the south, near to R.F. boundary. The elevation of the area ranges from 430 m AMSL on northern side to 330 m AMSL in southern side. No such tree growths are present within the C.A. area. The seasonal Bilamada nala is flowing from east to west on the southern part of the said area, which falls in Pitesu Nadi on the east.

**4. SOIL TYPE:-**

Soil may be defined as a mixture of sand with the organic matter. The allotted C.A area forms a part of Eastern-ghat super group of Archaean rocks. The rock types exposed and identified in the area are khondalite, granite gneiss, calc-granulite, quartzite etc. The rocks are highly weathered forming lateritic and sandy soils.

**5. CLIMATE:-**

In recent times, the maximum temperature goes up to 40°C during summer. Due to sandy & lateritic soil the area around are sub-tropical warm temperature. Normally, the temperature during summer months increases up to 40°C, whereas the minimum temperature is 25°C during winter months. Mean annual temperature in the area is 35°C. The relative humidity varies from 15% to 25% during summer months.

**6. OBJECTIVE OF THE SCHEME:-**

In general, the main objective is to carry out plantation/ afforestation with soil moisture conservation works within the allotted degraded forest area of the said R.F. area to:-

- i. Restore the degraded forest lands, as shown in the Map,
- ii. Demarcate and fence the area in ground to dispense with biotic interferences,
- iii. Improve the micro-edaphic conditions by undertaking suitable soil and moisture conservation measures and
- iv. to create awareness among the local villagers for protection and maintenance of this plantation and the adjoining forest for ensuring enrichment of the ecosystem.

## 7. PROPOSED TECHNIQUE:-

To achieve the above objectives, it has been proposed to take up Block Plantation @ 1000 plants/ ha. at a spacing of 4.0 mt. X 2.5 mt. in identified area. The following works prescribed in the scheme are to be taken up.

### a. Survey and Demarcation of boundary of C.A.Area: -

The degraded forest land identified for C.A. over 30.00 ha has been surveyed by GPS. The geo co-ordinates demarcated with reference to the R.F. Map and allotted R.F. boundary at every corner pillar/ turning points of boundary line are given below.

**GPS Co-ordinates of Boundary Pillars over 30.00 ha.**

SL NO	PILLAR No.	LATITUDE	LONGITUDE
1	CA - 1	19°17'24.324"	83°21'49.500"
2	CA - 2	19°17'22.560"	83°21'46.152"
3	CA - 3	19°17'17.952"	83°21'44.712"
4	CA - 4	19°17'12.840"	83°21'43.452"
5	CA - 5	19°17'11.364"	83°21'41.436"
6	CA - 6	19°17'11.112"	83°21'37.404"
7	CA - 7	19°17'12.156"	83°21'32.832"
8	CA - 8	19°17'13.560"	83°21'32.256"
9	CA - 9	19°17'15.576"	83°21'32.004"
10	CA - 10	19°17'16. 188"	83°21'26.604"
11	CA - 11	19°17'17. 340"	83°21'22.680"
12	CA - 12	19°17'22.128"	83°21'20.232"
13	CA - 13	19°17'27.384"	83°21'17.496"
14	CA - 14	19°17'30.552"	83°21'23.940"
15	CA - 15	19°17'28.788"	83°21'27.936"
16	CA - 16	19°17'27.348"	83°21'32.364"
17	CA - 17	19°17'24.396"	83°21'38.664"
18	CA - 18	19°17'25.692"	83°21'44.496"

### b. Barbed wire Fencing:-

It is proposed to undertake Barbed wire fencing to the allotted C.A. area. The perimeter of the allotted degraded forest land is 2492.237 meter OR say 2,493.00 mtr. The fencing shall be taken up around the total C.A. area of 30.00 ha to facilitate the Block Plantation. The details (Co-ordinates, Pillar to Pillar distance and for-ward with back-ward bearing) of the allotted C.A. area are as under:

i) **Co-ordinates, Distance and Bearing of the C. A. Area Pillars:**

Sl. No.	PILLAR No.	Co-ordinates		Distance Between	Distance In Meter	Fore Bearing				Back Bearing			
		X (Easting)	Y (Northing)			Deg.	d	m	s	Deg	d	m	s
1	CA-01	748405.27038	2134619.17580		0.000								
2	CA-02	748308.70876	2134563.58554	CA-01-CA-02	111.420	60.07108	60	4	15.903	240.071084	240	4	15.903
3	CA-03	748268.69248	2134421.31003	CA-02-CA-03	147.796	15.70912	15	42	32.829	195.709119	195	42	32.829
4	CA-04	748234.09639	2134264.04819	CA-03-CA-04	161.022	12.40689	12	24	24.817	192.406894	192	24	24.817
5	CA-05	748175.60488	2134216.88594	CA-04-CA-05	75.137	51.12044	51	7	13.590	231.120442	231	7	13.590
6	CA-06	748057.68950	2134208.05747	CA-05-CA-06	118.245	85.71819	85	43	5.467	265.718185	265	43	5.467
7	CA-07	747924.23978	2134237.76679	CA-06-CA-07	136.717	282.55083	282	33	2.979	102.550827	102	33	2.979
8	CA-08	747906.21894	2134281.60545	CA-07-CA-08	47.398	337.65381	337	39	13.733	157.653815	157	39	13.733
9	CA-09	747897.84785	2134343.63466	CA-08-CA-09	62.592	352.31414	352	18	50.912	172.314142	172	18	50.912
10	CA-10	747740.81578	2134359.76145	CA-09-CA-10	157.858	275.86357	275	51	48.855	95.8635707	95	51	48.855
11	CA-11	747625.69111	2134394.12134	CA-10-CA-11	120.143	286.61816	286	37	5.375	106.61816	106	37	5.375
12	CA-12	747551.23187	2134540.41618	CA-11-CA-12	164.153	333.02541	333	1	31.477	153.02541	153	1	31.477
13	CA-13	747469.56187	2134700.87846	CA-12-CA-13	180.050	333.02541	333	1	31.477	153.02541	153	1	31.477
14	CA-14	747656.88879	2134800.64210	CA-13-CA-14	212.236	61.96183	61	57	42.579	241.961827	241	57	42.579
15	CA-15	747774.47326	2134747.84015	CA-14-CA-15	128.896	294.18272	294	10	57.809	114.182725	114	10	57.809
16	CA-16	747903.52061	2134705.57085	CA-15-CA-16	135.794	288.13614	288	8	10.109	108.136141	108	8	10.109
17	CA-17	748088.95018	2134616.66792	CA-16-CA-17	205.640	295.61507	295	36	54.250	115.615069	115	36	54.250
18	CA-18	748259.36577	2134659.59649	CA-17-CA-18	175.739	75.86106	75	51	39.828	255.861063	255	51	39.828
19	CA-01	748405.27038	2134619.17580	CA-18-CA-01	151.400	285.48460	285	29	4.550	105.484597	105	29	4.550
		<b>Total</b>			<b>2492.237</b>								

The RCC pillars (size – Length = 8', Bottom width = 6" x 6", Top width = 4" x 4" & reinforced with 6 mm rods) shall be fixed with a pillar to pillar spacing of 2.5 mtr. Hence, there will be a requirement of 400 + 80 (Two Strut pillars in every 10<sup>th</sup> pillar) = 480 pillars per km.

ii) **Cost estimate for barbed wire fencing:**

The expenditure per running meter for fencing = **Rs. 674/- (Rupees Six Hundred Seventy Four)** only per meter (**Annexure – i**). Hence, the total cost of the Barbed wire Fencing over 2,493.00 mtr (Rs. 680.00 x 2,493.00 mtr.) = **Rs.16,95,240.00 (Rupees Sixteen Lakh Ninety five thousand two hundred forty) only.**

c) **Watch & Ward:**

To check the biotic interference in to the allotted C.A. area, to protect the area against grazing and fire accident, required watchers are to be deployed for ten years immediately from the date of initiation of the plantation work.

d) **Raising of Nursery:-**

Seedlings required for the plantation are to be raised in the nursery by the forest department. The Nursery should have a capacity of raising adequate seedlings. Nursery works will be undertaken in consultation with DFO, Rayagada Forest Division. All the infrastructures shall be provided by the user agency.

10% extra seedlings shall be raised to compensate the casualty in the nursery. Standard nursery practices shall be followed for raising of seedlings in polythene bags.

**e) Alignment and Stacking:-**

Alignment, stacking and pitting will be taken up in the month of March-April, pits of size 30cm X 30cm X 30cm will be dug by maintaining a spacing of 4.0 mt X 2.5 mtr.

**f) Planting:-**

The seedlings will be planted in the pits of 30 cm<sup>3</sup> maintaining a spacing of 4.0 mt X 2.5 mtr. from pit to pit. Plantation should be taken up after first regular shower of monsoon and should be completed by end of August. NPK/ fertilizer @ 30 gms per plant should be applied per pit. Casualty replacement, if required during the planting year and in the second year should be undertaken for which the seedlings shall be raised.

**The list of species to be adopted for the plantation is as follows:-**

SL No	Name Species	Botanical Name.
1	Amla	Emblica officinalis.
2	Dimiri	Ficus glomerata.
3	Jamu	Syzygium cumini.
4	Karanj	Pongamia pinnata.
5	Neem	Azadirachta indica.
6	P.Sissoo	Dalbergia latifolia
7	Kanchana	Bauhinia variegata
8	Salia Bamboo	Dendricalamus strictus
9	Gambhari	Gmelina arborea
10	Piasal	Pterocarpus marsupium
11	Sissoo	Dalbergia sissoo
12	Sandal	Santalum album

**g) Planting & Post-Planting: -**

The area is to be re-stocked by raising plantation. Taking into consideration the site specific soil condition, existing species shall be allowed to grow naturally and according to the requirement of the people tree should be planted in the area.

The main objective of the present scheme is to raise block plantation in degraded forest as well as to retain soil & moisture conservation measures, restock & rejuvenate degraded forest. Hence, the main objective of the present scheme is as follows: -

- i) To carry out the block plantation in the degraded forest land to restock the degraded forest.
- ii) To demarcate clearly and fence the area to dispense with the biotic interferences.
- iii) To improve the micro-edaphic conditions by undertaking suitable soil and moisture conservation measures.
- iv) To protect the area against encroachment, illicit felling, fire incidence, grazing and all other forms of biotic interference and allow unhindered growth of the saplings.

v) To create awareness among the local villagers for protection and maintenance of plantation and the forest for ensuring enrichment of the ecosystem and replacement of the degraded areas with natural green cover.

**h) Weeding, Soil Working and Manuring:-**

For establishment and better growth of the planted seedlings, weeding, soil working and manuring are necessary. It is prescribed to carry out two weeding, soil working and manuring during the first year and second year of plantation and one weeding and soil working during the third year. Weeding and manuring for the first and second year shall be carried out during August-September and the second one during October-November along with soil working during which 30 gms. of NPK/ Fertilizers shall be added to the soil per plant. First seedling shall be for the area weeding and the second seedling should be strip weeding. The weeding of third year for the area shall be carried out during August.

**i) Application of Insecticides: -**

The plantation site after planting with good seedlings may in course of time get infested with diseases owing to influx of insects and pests into the area, which usually cause heavy damage to the soft, tender and avidly growing parts of the plant that heavily affects the rate of growth and sometimes causes wide spread casualty of the seedlings. To avoid such incidences, foliar spray and ground application of insecticides at regular intervals usually on a sunny day in the fore noon shall be done.

**j) Fire Line Tracing and Maintenance: -**

Fire causes irreparable damage to the plantation and the forest growth during fire season and to prevent such fire out-breaks in the area, the plantation area shall be divided into suitable blocks by tracing fire lines. Boundaries of the plantation patches and these block lines will be scrapped of forest growth to a width of 3.0 mt. during Feb-March and the cut back materials and the dry leaves stacked along these fire lines shall be burnt under direct supervision. This operation is highly essential and the scheme proposes to carry this operation for the first three years.

**k) Soil & Moisture Conservation Measures: -**

The site selected for re-stocking and re-juvenation by Compensatory Afforestation in the allotted degraded forest land and the slope of the identified area varies from gently slope to moderate with undulating topography at places. Nals are formed due to erosion of soil. Therefore, soil conservation measure is indispensable and is to be appropriately designed.

The estimated cost of Soil and Moisture conservation measures will be **Rs. 4,321.00 per ha (Annexure – ii)**. So, the total cost over 30.00 ha. of CA land = **Rs. 4321.00 X 30.00 ha = Rs. 1,29,630.00 (Rupees One Lakh Twenty Nine Thousand Six Hundred Thirty)** only in Ribalkana R.F.

**8. PLANTATION SCHEDULE & COST: -**

The detailed schedule of plantation programme with estimated cost of various operations to be taken up in block plantation has been furnished in Annexure - iii. The cost for block plantation @ 1,000 plants per hectare (Wage rate Rs. 298.00 per man-day) with 10 years maintenance has been estimated to Rs. 1,07,320.00 (Rupees One Lakh Seven Thousand Three Hundred Twenty) only. So, the total cost of above plantation over 30.00 ha of C.A. land = Rs. 1,07,320.00 X 30.00 ha = **32, 19, 600.00** (Rupees Thirty Two Lakh Nineteen Thousand Six Hundred) only.

<b>ABSTRACT OF COST ESTIMATE FOR BLOCK PLANTATION@ 1,000 PLANTS PER HECTARE. (WAGE RATE Rs. 298.00 PER MAN-DAY).</b>						
Sl. No.	Year	No. Person Day	Labour cost @ Rs 298.00 per day	Material cost (Rs)	Monitoring & Supervision charge 5% of the total cost in Rs.	Total cost in (Rs)
1	0th year	64.5	19,221.00	2,013.00	1,061.70	22,295.70
2	1st year	64	19,072.00	2,522.10	1,079.15	22,673.25
3	2nd year	32	9,536.00	2,756.00	614.60	12,906.60
4	3rd year	28	8,344.00	1,200.00	477.20	10,021.20
5	4th year	18	5,364.00	0	268.20	5,632.20
6	5th year	18	5,364.00	0	268.20	5,632.20
7	6th year	18	5,364.00	0	268.20	5,632.20
8	7th year	18	5,364.00	0	268.20	5,632.20
9	8th year	18	5,364.00	0	268.20	5,632.20
10	9th year	18	5,364.00	0	268.20	5,632.20
11	10th year	18	5,364.00	0	268.20	5,632.20
Total:		314.5	93,721.00	8,491.10	5,110.05	<b>1,07,322.15</b> Or Rs.1,07,322.00
(Rupees One Lakh Seven Thousand Three Hundred Twenty Two only).						

**9. Executing Agency:-**

All the works under this scheme shall be executed by the forest department, Rayagada. Therefore, to facilitate this, the user agency shall pay the estimated cost of block plantation to the Forest Department. For successful implementation of the above proposed programmes, intensive inspection, monitoring and technical guidance from Divisional Forest Officer, Rayagada Forest Division is highly essential.

**10. FINANCIAL OUTLAY: -**

The financial outlay for Compensatory Afforestation scheme in Block Plantation @ 1000 seedlings per ha over an area of 30.00 ha of degraded forest land identified in Ribalkana R.F. of Kalyansinghpur forest range under Rayagada Forest Division in lieu of 14.661 ha. of forest land proposed to be diverted to raise 30,000 plants for construction of 132 KV Transmission line from grid sub-station Therubali to RTSS Bhalumaska of OPTCL, Construction Division, Rayagada District, Odisha.

Sl. No.	Description	Amount in Rs.
<b>PLANTATION ACTIVITIES (To be deposited in Ad-hoc CAMPA)</b>		
1.	Total cost for Barbed wire fencing around the identified CA land (2,493.00 Rmt.) over 30.00 ha.	16,95,240.00
2.	Total Cost for Soil and Moisture Conservation Measures over 30.00 ha. of CA land.	1,29,630.00
3.	Total Cost of Block Plantation @ 1,000 plants per hectare over 30.00 ha with 10 years maintenance.	32, 19, 660.00
	<b>Sub - Total</b>	50,44,530.00
4.	5% of the sub - total cost to-wards Monitoring & Evaluation	2,52,227.00
	<b>Total</b>	<b>52,96,757.00</b>
5.	Add Escalation Cost @ 20% of the total cost =	10,59,351.00
	<b>Grand Total.</b>	<b>Rs. 63,56,108.00</b>
(Rupees Sixty three lakh fifty six thousand one hundred eight) only.		

#### 11. REQUIREMENT OF FUNDS:-

The total cost for implementation of the above proposed scheme will be **Rs. 63, 56,108.00 (Rupees Sixty three lakh fifty six thousand one hundred eight)** only. The above expenditure will be made over the next ten years period. This budget will be subject to increase considering the escalation in materials and labour wages.

  
 Divisional Forests Officer,  
**DIVISIONAL FOREST OFFICER**  
 Rayagada Forest Division,  
**RAYAGADA DIVISION**

**ESTIMATE FOR BARBED WIRE FENCING**

1) 02 PLY barbed wires 5 Rmt per kg)

7 Straight stand x 1000mt = 7000mt  
 2 diagonal stand =  $2 \times \sqrt{(6.5)^2 + (8.2)^2} = 2 \times 10.50\text{ft}$   
 $= 21.00 \text{ ft} \times 400\text{nos} = 8400 \text{ ft or} = \underline{2560 \text{ mt}}$   
 $9560\text{mt}$

Requirement of Barbed wire per km

Cost per k m= 9560/5 =1912kg @ Rs 80/kg Rs 1,52,960.00

2) Construction of RCC Pillar size of length 8ft, Bottom width 6" x 6",  
 Top width – 4"x4" Reinforced with 6mm rods with proper curing  
 $\{8 \times (6" + 4")/2\} \times (6" + 4")/2 = 1.34\text{ft or } 0.038 \text{ cum}$

i) Cost of CC work 1:2:4= 0.038cum @5356.18/cum	= 203.53
ii) Cost of rod including cutting bending & binding $0.038 \times 0.9 \text{ qtl} = 0.0342 \text{ qtl} @ \text{Rs } 10841.72/\text{qtl}$	= 370.86
iii) Contingency (15% ) including curing, stacking, provision of hooks etc	= 86.16

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Rs 660.55

Requirement of pillars per kilometer

Spacing = 2.5m x 2.5mt

Requirement = 1000mt/ 2.5mt = 400

Strut pillar in every 10<sup>th</sup> pillar =  $(400/10) \times 2 = 80$

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480 nos

Cost of pillars per km = 480@660.55/- Rs 3,17,064.00

3) Fitting of fixing of RCC pillars in position with hbg metal (4cm) in C.M (1:4:8)

i) Digging of pits 1.5'x1.5'x1.5' = 3.375cft/pit  
 For 480 pits  $480 \times 3.375 = 1620 \text{ cft or } 45.86 \text{ cum } @ 12,814/100\text{cum} = \text{Rs } 5,876.50$

ii) Fixing of pillars with 4cm hbg metals in C.M 1:4:8

Pit size 1.5'x1.5'x1.5' = 3.375cft

Deduct 1/3th of butt of pillar i.e  $3.375/3 = (-) 1.125 \text{ cft}$

Total C.C work per pillar 

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2.25 cft

For 480 pillars =  $480 \times 2.25 = 1080 \text{ cft or } 30.577 \text{ cum } @ 3702.74/\text{cum} \text{ Rs } 1,13,218.68$

4) Labour for straightening the barbed wire and fixing & clipping  
 with pillars 70 MD per km @298.00

Rs 20,860.00

5) Carriage of Barbed wire & pillars to work site @ Rs 1000/tl  
and cost of loading & unloading within 5km distance  
Approximately 10tld @800/tld Rs 18,000.00

6) Provision of one iron Gate of size (4'x5') on LS Rs 7,500.00

Total = Rs 6,35,479.18  
Labour Cess 1% = Rs 6,354.79  
Rs 6,41,833.97

*Expenditure per 1km of barbed wire fencing*  
Or say Rs. 642/- per Rmt

7) Expenditure towards maintenance for 3 years 3<sup>rd</sup>, 6<sup>th</sup>& 9<sup>th</sup> year)  
@ 2% cost per Rkm = 3 X 2% of Rs 6,41,834/- Rs 38,510.04

Expenditure per 1km of barbed wire fencing including maintenance Rs 6,80,344.01

**So, expenditure per Rmt of Barbed wire fencing = Rs 680.34 Or 680/-**

**(Rupees Six hundred eighty-one) only.**

  
Divisional Forest Officer  
**DIVISIONAL FOREST OFFICER**  
**RAYAGADA DIVISION**

**ANALYSIS OF RATES FOR BARBED WIRE FENCING**

1 Earth work excavation of foundation in hard soil with initial lead 50m.  
 (a) And lift 1.5 m. including rough dressing and breaking clods  
 Maximum 5 to 7 cm .size including leveling & dressing etc. per % Cum.

Male Mulia	43	Nos. @	Rs.	298.00	Rs.	12814.00	
Female Mulia					Rs.	12,814	/%Cum

2 C.C (1:4:8) using 4cm size hard granit metal including lying compacting, Curing with all cost, Conveyance, royalty of materials etc. per Cum (A/R 24 item no.4)

H.G Metal	0.96	cum. @	Rs.	1223.40	Rs.	1174.46	
Sand	0.48	cum. @	Rs.	443.00	Rs.	212.64	
Cement	1.72	Qntl. @	Rs.	630.00	Rs.	1083.60	
mission 2Nd class	0.18	Nos. @	Rs.	388.00	Rs.	69.84	
Man Mulia	1.8	Nos. @	Rs.	298.00	Rs.	536.40	
Women Mulia	1.4	Nos. @	Rs.	298.00	Rs.	417.20	
Man Mulia	0.7	Nos. @	Rs.	298.00	Rs.	208.60	
					Rs.	3702.74	/Cum.

3 Cement Concrete (1:2:4) with 12 mm size C.B.H.G Chips including Cost, Carriage & royalty etc. complete.

HG Chips 12mm	0.96	cum. @	Rs.	1581.40	Rs.	1518.14	
Sand	0.45	cum. @	Rs.	443.42	Rs.	199.54	
Cement	3.23	Qntl. @	Rs.	630.00	Rs.	2034.90	
Masson 2nd class	0.6	Nos. @	Rs.	388.00	/day	Rs. 232.80	
Man Mulia	4.6	Nos. @	Rs.	298.00	/day	Rs. 1370.80	
					Rs.	5356.18	/Cum

4 Cutting bending, binding, straightening and tying the grills and placing in position including cost of M.S of Tor Steel & binding wires atc.

Ref-A/R-2006 item No.9 page 52

Taking output for 1QT.

Cost & Carriage of HYSD steel including 5%

For wastage & overlapping	1QT	1.05	5500.00	Rs.	5775.00	
Binding wire (GI)	Kg	8.00	80.00	Rs.	640.00	
Labour for cutting bending shifting of site lying & placing in position. Mate	Each	0.44	388.00	Rs.	170.72	
Black smith special	Each	4.00	388.00	Rs.	1552.00	
Semi-skilled Mulia	Each	8.00	338.00	Rs.	2704.00	
				Rs.	10,841.72	/QT

  
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**The estimated cost of soil & moisture measure is tabulated below:**

<b>Cost Estimate of soil &amp; moisture conservation measures per ha.</b> <b>(@ Rs. 298.00 wage rate per Manday)</b>					
Sl. No.	Item of works	Man days @Rs. 298.00 per day	No. of Trenches per ha.	Amount per one staggered trench in Rs.	Total amount required per ha. In Rs.
1.	Staggered trench of size 2 mtr x 0.5 mtr along the contour line	10	14	212.85	2,980.00
2.	2mx0.5mx0.5m;digging of percolation pits in lieu of staggered trenches,	2	0		596.00
3.	Gully plugging and drainage line treatment, half moon trench for gully plugging, drainage line treatment wherever necessary	2.5	0		745.00
<b>TOTAL Rs. per ha.</b>					<b>4,321.00</b>

*[Signature]*  
**DIVISIONAL FOREST OFFICER**  
**RAYAGADA DIVISION**

DETAILS OF BLOCK PLANTATION FOR COST ESTIMATE @1,000 SEEDLINGS PER HECTARE TO RAISE 30,000.00 PLANTS IN 30.00 ha.	
1	Type of the Plantation:
2	No. of seedlings to be planted:
3	Pit to Pit Spacing to be adopted:
4	Size of pits:
5	Wage rate:

**COST NORM FOR BLOCK PLANTATION @ 1,000 PLANTS PER HECTARE. (WAGE RATE Rs. 298.00 PER MAN-DAY).**

Sl. No.	Item of work.	Period of Execution.	Person days.	Labour cost in Rs.	Material cost in Rs./ha	Total in Rs.
1	2	3	4	5	6	7

**0<sup>TH</sup> YEAR (ADVANCE WORK) PRE-PLANTING OPERATION.**

1.	Survey, Demarcation, Pillar posting & GPS reading with mapping.	Nov/Dec.	2	596.00	0	596.00
2.	Site preparation.	Nov/Dec.	8	2,384.00	0	2,384.00
3.	Alignment and stacking of pits.	Jan/ Feb.	2	596.00	0	596.00
4.	Digging of Pits (30 cm cube).	Feb/ Mar.	25	7,450.00	0	7,450.00
5.	Nursery cost (6 months old seedling) part @ Rs.13.25/- per seedling (Rs.9.28 in 0 <sup>th</sup> year + Rs. 3.97 seedling in 1 <sup>st</sup> year, including 10% Casualty replacement) for raising 1,100 (1,000+100) seedlings/ ha.	Jan-March.	27.5	8,195.00	2,013.00	10,208.00
<b>Total</b>			<b>64.5</b>	<b>19,221.00</b>	<b>2,013.00</b>	<b>21,234.00</b>
6.	Monitoring & Supervision Charge 5% of the total cost.		0	0		1,061.70
<b>Grand Total</b>			<b>64.5</b>	<b>19,221.00</b>	<b>2,013.00</b>	<b>22,295.70</b>

**1<sup>ST</sup> YEAR / PLANTING YEAR.**

1.	Nursery cost (6 months old seedling) balance @ Rs. 3. 97 per seedling for 1,100 seedlings.	Apr-July.	13	3,874.00	502.10	4,376.10
2.	Carriage & planting, Casualty Replacement and application of insecticides, manure etc.	Jul/Aug	13	3874.00	0.00	3,874.00
3	Cost of insecticide and fertilizer (a)NPK @ 50 gms/plant as basal dose =50kg @ Rs.24/- per kg = Rs.1200.00 (b) Urea @ 70 gms/plant in two subsequent doses @ Rs.6/- per kg = Rs.420.00 (c) Granular insecticide (Themet, Forate etc.) @ 5 gms/plant @ Rs.80/- per kg = Rs.400.00		0	0.00	2020.00	2,020.00
4.	1 <sup>st</sup> weeding (Complete weeding).	Aug/ Sep.	5	1,490.00	0	1,490.00

5.	Manuring urea 35 gms.	Aug/ Sep.	4	1,192.00	0	1,192.00
6.	2 <sup>nd</sup> weeding (Complete weeding).	Sept/ Oct.	4	1,192.00	0	1,192.00
7.	Soil working (50 cms. Radius around plants) &manuring Urea 35 gms per plant.	Sept/ Oct.	5	1,490.00	0	1,490.00
8.	Soil conservation measures in the form of staggered trenches of size 2 m X 0.5 m X 0.5 m @ 30 nos. per ha.	Sep/ Oct.	10	2,980.00	0	2,980.00
9.	Fire line tracing & Inspection path.	Feb/ Mar.	3	894.00	0	894.00
10.	Watch & Ward	Aug- Mar.	7	2,086.00	0	2,086.00
	<b>Total</b>		<b>64</b>	<b>19,072.00</b>	<b>2,522.10</b>	<b>21,594.10</b>
11.	Monitoring & Supervision Charge 5% of the total cost.		0	0		1,079.10
	<b>Grand Total.</b>		<b>64</b>	<b>19,072.00</b>	<b>2,522.10</b>	<b>22,673.20</b>

#### 2<sup>ND</sup> YEAR MAINTENANCE

1	Casualty replacement (10%) with Nursery cost	Jul/Aug	2.5	745.00	1036.00	1,781.00
2	Weeding (complete weeding)	Sep/Oct	4	1,192.00	0.00	1,192.00
3	Cost of fertilizer (NPK @70 gms/plant for 1000 plants) (Rs.24/-per kg & Insecticide @5 gms/plant for 100 plants 500 gms @ Rs.80/- per kg)		0	0.00	1720.00	1,720.00
4	Soil working (50 cms. Radius around plants)	Oct/Nov	5	1,490.00	0.00	1,490.00
5	Application of fertilizer & insecticide.	Sep/Oct	2.5	745.00	0.00	745.00
6	Fire line tracing (2 m. wide fire line over 400 m long).	Feb/Mar	3	894.00	0.00	894.00
7	Watch & Ward.	Apr-Mar	15	4,470.00	0.00	4,470.00
	<b>Total</b>		<b>32</b>	<b>9,536.00</b>	<b>2,756</b>	<b>12,292.00</b>
8	Monitoring & Supervision charge 5% of the total cost.			0		614.60
	<b>Grand Total</b>		<b>32</b>	<b>9,536.00</b>	<b>2,756</b>	<b>12,906.60</b>

#### 3<sup>RD</sup> YEAR MAINTENANCE

1	Weeding and application of fertilizer.	Aug/Sep	5	1,490.00	0.00	1,490.00
2	Cost of fertilizer (NPK @ 50 gms/plant) @ Rs.24/-per kg.		0	0.00	1,200.00	1,200.00
3	Soil working (50 cms. Radius around plants) & application of fertilizer.	Oct/Nov	5	1,490.00	0.00	1,490.00
4	Fire line tracing (2m. wide fireline over 400m length) & cultural operation.	Feb/Mar	3	894.00	0.00	894.00
5	Watch & Ward.	Apr-Mar	15	4,470.00	0.00	4,470.00
	<b>Total</b>		<b>28</b>	<b>8,344.00</b>	<b>1,200</b>	<b>9,544.00</b>
6	Monitoring & Supervision charge 5% of the total cost					477.20

	<b>Grand Total</b>		<b>28</b>	<b>8,344.00</b>	<b>1,200</b>	<b>10,021.20</b>
<b>4TH YEAR MAINTENANCE</b>						
1	Fire line tracing (2m wide fire line over 400m length) & cultural operation	Feb/Mar	3	894.00	0	894.00
2	Watch & Ward	Apr-Mar	15	4,470.00	0	4,470.00
	<b>Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,364.00</b>
3	Monitoring & Supervision charge 5% of the total cost			0.00		268.20
	<b>Grand Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,632.20</b>
<b>5TH YEAR MAINTENANCE</b>						
1	Fire line tracing (2m wide fire line over 400m length) & cultural operation	Feb/Mar	3	894.00	0	894.00
2	Watch & Ward	Apr-Mar	15	4,470.00	0	4,470.00
	<b>Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,364.00</b>
3	Monitoring & Supervision charge 5% of the total cost			0.00		268.20
	<b>Grand Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,632.20</b>
<b>6TH YEAR MAINTENANCE</b>						
1	Fire line tracing (2m wide fire line over 400m length) & cultural operation	Feb/Mar	3	894.00	0	894.00
2	Watch & Ward	Apr-Mar	15	4,470.00	0	4,470.00
	<b>Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,364.00</b>
3	Monitoring & Supervision charge 5% of the total cost			0.00		268.20
	<b>Grand Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,632.20</b>
<b>7TH YEAR MAINTENANCE</b>						
1	Fire line tracing (2m wide fire line over 400m length) & cultural operation	Feb/Mar	3	894.00	0	894.00
2	Watch & Ward	Apr-Mar	15	4,470.00	0	4,470.00
	<b>Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,364.00</b>
3	Monitoring & Supervision charge 5% of the total cost			0.00		268.20
	<b>Grand Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,632.20</b>
<b>8TH YEAR MAINTENANCE</b>						
1	Fire line tracing (2m wide fire line over 400m length) & cultural operation	Feb/Mar	3	894.00	0	894.00
2	Watch & Ward	Apr-Mar	15	4,470.00	0	4,470.00
	<b>Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,364.00</b>
3	Monitoring & Supervision charge 5% of the total cost			0.00		268.20
	<b>Grand Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,632.20</b>
<b>9TH YEAR MAINTENANCE</b>						
1	Fire line tracing (2m wide fire line over 400m length) & cultural operation	Feb/Mar	3	894.00	0	894.00
2	Watch & Ward	Apr-Mar	15	4,470.00	0	4,470.00
	<b>Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,364.00</b>

3	Monitoring & Supervision charge 5% of the total cost			0.00		268.20
	<b>Grand Total</b>		18	5,364.00	0	5,632.20
<b>10TH YEAR MAINTENANCE</b>						
1	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	894.00	0	894.00
2	Watch & Ward	Apr-Mar	15	4,470.00	0	4,470.00
	<b>Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,364.00</b>
3	Monitoring & Supervision charge 5% of the total cost			0.00		268.20
	<b>Grand Total</b>		<b>18</b>	<b>5,364.00</b>	<b>0</b>	<b>5,632.20</b>

  
 Divisional Forest Officer  
 Rayagada Forest Division  
**DIVISIONAL FOREST OFFICER  
RAYAGADA DIVISION**

## SUITABILITY CERTIFICATE

This is to certify that 30.00 ha of degraded forest land identified in RebolkonaR.F. In Sikarpai Section of Kalyansingpur Forest Range under Rayagada Forest Division of Rayagada District was found suitable and free from encroachment for the purpose of Compensatory Afforestation in lieu of 14.661 ha of forest land proposed to be diverted for construction of the 132Kv Transmission Line from Therubali Sub-station to RTSS Bhalumaska of OPTCL in Rayagada district, Odisha.

Plantation @ 1000 nos. per ha shall be raised on the above identified degraded forest land and the balance plants shall be raised on degraded forest land as per working plan prescriptions.

RPOB  
12.02.20

Forest Range Officer  
K.Singpur Range.

Forest Range Officer  
Kalyansingpur Range

  
DIVISIONAL FOREST OFFICER  
RAYAGADA DIVISION