# Land Suitability Certificate

This is to certify that 26.44 Ha. of degraded forest land in Subarnagiri R.F. Compt. No. 1 and 13.26 Ha. of degraded Revenue forest kissam land in Balakira Village, Mundapada RI Circle under Boudh Tahasil, Khata No.-287, Plot No. 1372 And 1374 , Kissam Gramya Jungle under Boudh Range in Boudh Forest Division identified for Compensatory Afforestation and found suitable for plantation from management point of view. No plantation has been carried out in the aforesaid area previously.

05/11/20

Divisional Forest Officer
Boudh Forest Division

Divisional Forest Officer
Boudh Division

# EXECUTIVE SUMMARY

The Scheme of Compensatory Afforestation over an area of 26.436 Ha. or say 26.44 Ha. has been prepared in lieu of diversion of forest land over an extent of 13.218 Ha. for construction of Khurdha Road – Bolangir New BG Rail Link. Initially, the Compensatory Afforestation area over an extent of 26.44Ha. has been identified in Compt. No. 1 of Subarnagiri R.F under Boudh Range of Boudh Division. The said C.A area has been proposed for Compensatory Afforestation @ 200 plants/Ha. in ANR with gap plantation mode. For which the detailed scheme was submitted to O/o the Principal C.C.F, Forest Diversion and Nodal officer, F.C Act, Bhubaneswar vide this office letter no. 3618 dt. 09.08.2019 through RCCF, Berhampur Circle. Subsequently, after scrutiny of the same, the O/o the Principal C.C.F, Forest Diversion and Nodal officer, F.C Act returned back to O/o the DFO, Boudh Forest Division with a direction to accommodate 21212 nos. of seedlings in the same area or else an additional degraded forest land may be identified vide his memo no. 17143 dt. 03.10.2019. Accordingly, a new patch of area has been identified in Balakira village of Mundapada R.I Circle of Boudh Tahasil bearing Khata No. 287, Plot No. 1372 & 1374, Kissam- Gramya Jungle over an extent of 13.26 Ha. for raising of Compensatory Afforestation. Moreover, in two C.A scheme total 26504 nos. of seedlings will be raised against the minimum requirement of 26500 nos. of seedlings.

**Details of Compensatory Afforestation Scheme:**

Since, two sites have been selected for raising of Compensatory Afforestation two separate schemes are prepared as follows:

**a. Scheme-I**

The scheme for raising of Compensatory Afforestation in ANR with Gap 200 plants/ Ha. mode over 26.44Ha. of Degraded forest land in Subarnagiri R.F Compt. No. 1 under Boudh Range of Boudh Forest division in Boudh District with maintenance up to ten years (with $0^{th}$ year) in the current wage rate @ Rs. 308/- per manday to accommodate 5288 nos. of seedlings.

**b. Scheme-II**

The scheme for raising of Compensatory Afforestation in AR (Block Plantation) mode with 1600 plants/Ha. over 13.26Ha. of degraded revenue forest kissam land in the village Balakira Khata No. 287 and Plot No. 1372 & 1374 under Boudh Range of Boudh Forest Division in Boudh District with maintenance up to ten years (with $0^{th}$ year) in the current wage rate @ Rs. 308/- per manday to accommodate 21212 nos. of seedlings.

## SUMMARY OF THE COMPENSATORY AFFORESTATION SCHEME

| Sl. No. | Scheme | Mode of Plantation | Area in Ha. | No. of seedlings to be planted |
|---|---|---|---|---|
| 1. | Scheme-I | ANR with Gap @ 200 plants/ Ha. | 26.44 | 5288 |
| 2. | Scheme-II | AR (Block Plantation) @ 1600 plants/ Ha. | 13.26 | 21216 |
| **Total** | | | | **26504** |

05/11/20
Divisional Forest Officer
Boudh Forest Division
Divisional Forest Officer
Boudh Division

**COMPENSATORY AFFORESTATION SCHEME OVER 26.44 HA OF DEGRADED FOREST LAND IDENTIFIED IN SUBARNAGIRI RESERVE FOREST COMPARTMENT NO. 1 UNDER BOUDH RANGE IN BOUDH DISTRICT IN LIEU OF DIVERSION PROPOSAL OVER 13.218 Ha. FOR CONSTRUCTION OF KHURDA ROAD – BOLANGIR NEW B.G. RAIL LINK PROJECT (180 KM TO 238 KM) OF EAST COAST RAILWAY, BHUBANESWAR.**

## INTRODUCTION

The Indian Railways have taken up a project of construction of a new B. G. line having an approximate length of 289 km. connecting Khurda Road station on Howrah-Chennai main line to Bolangir situated on Titlagarh-Sambalpur-Jharsuguda branch line.

The line falls entirely in Orissa state and will traverse through six districts of Odisha viz., Puri, Khurda, Nayagarh, Boudh, Sonepur and Bolangir. It will connect the coastal Odisha with Western Odisha leading to emotional and cultural integration of both the parts. Moreover, it will reduce the distance to New Delhi, Mumbai and Western India by 140 Km. from Bhubaneswar and Puri, the state capital and cultural capital of Orissa respectively.

The Industrial and economic growth of the area under which this line falls has not progressed due to poor transport facilities. The concerned area is majorly inhabited by poor and underprivileged population of the society who spend their lives on the edge of modernization who might have never seen a train till date. No major industries can be observed and the region is not at all urbanized. However, there are a number of medium and small scale as well as cottage industries which could prosper with the commissioning of the line. Granite, Graphite, Quartz, Limestone etc. are available in large quantities in the region and the industry seems to be putting efforts to exploit the mineral resources in a productive manner. The line on being commissioned could give further imputes for growth and modernization of the alluded zone.

## LAND INVOLVED

This project extents over an area of 13.218Ha. forest land for construction of new BG Rail line from 180 Km. to 238 Km. of Khurdha Road-Bolangir Rail link Project. Hence, this 13.218 Ha. of forest land has been proposed for Diversion under Forest (Conservation) Act, 1980 in lieu of which the Compensatory Afforestation will raised over the double extent of forest kissam land i.e. 26.44 in Boudh Forest Division.

## ALLOCATION OF GOVT. LAND

The Scheme of Compensatory Afforestation over an area of 26.436 Ha. or say 26.44Ha. is prepared in lieu of diversion of forest land over an extent of 13.218 Ha. for the construction of Khurda Road – Bolangir New BG Railway line. The Compensatory Afforestation area 26.44 Ha. of degraded forest land has been identified in Subarnagiri Reserve Forest compartment no. 1 under Boudh Range in Boudh Division. The area so selected is proposed for Compensatory Afforestation in ANR with Gap Plantation mode @ 200 plants/Ha..

The scheme for raising of Compensatory Afforestation in ANR with Gap Plantation mode @ 200 plants/Ha. over an area of 26.44Ha. of degraded forest land has been identified in Subarnagiri Reserve Forest compartment no. 1 under Boudh Range in Boudh Division in Boudh Dist. with maintenance up to ten years (with $0^{th}$ year) in the current wage rate @ Rs. 308/- per manday.

## DETAILS OF SELECTION OF SITE

**District : Boudh.**

**Tahasil : Boudh**

The Compensatory Afforestation has been indentified in Subarnagiri R.F. Compt. No. 1 over 26.44Ha. under Boudh Tahasil of Boudh District. The site located on Survey of India Open Series Topo sheet No. F45 S/2 confined within LATITUDE: 20°38'54" & 20°39'21", LONGITUDE : 84°10'49" & 84°11'15" and indicated on the map enclosed as **Annexure –I**. The proposed area is free from encroachment, other encumbrances and found suitable for plantation.

### 1. Description of Area :

**I.** The identified Degraded forest area is under the possession of Forest Department and classified as Reserve Forest.

**II.** **Soil type:** Laterite. Some patches support swallow soil, mixed sand and exposed rock within the site.

**III.** **Topography :**

**a) Hilly/Undulating/Plain:** The topographical configuration of the identified site is undulating.

**b) Slope:** The site selected for Compensatory Afforestation have medium to gentle slope.

IV. **Whether the area is bearing any root stock of vegetation**: The site selected for Compensatory Afforestation has root stock and the existing vegetations are in degraded stage.

V. **Temperature :** The area experiences cold weather between November – January when the temperature drops to less than 13° C. the temperature rises steadily from January onwards reaching 32° C to 45° C in summer ( May). So it is under tropical condition with limited rainy days.

VI. **Climate& Rainfall**: The area has tropical climate with monsoon rains from June to September and occasional rains during the autumn. This area also experiences occasional gutsy wind to heavy thunderstorms during summer season (April to June). Monsoon breaks out in early to middle of June and continues up to September. The average annual rainfall is about 1600 mm under the influence of south west monsoon. On average, there are about 100 rainy days. The humidity is maximum in the month of July to August (90%) and minimum in February (36%). The wind velocity varies between 40 KMPH and 80 KMPH, although occasional higher values have also been reported. Lightening incidents are rarely reported in this area.

**2. Plantation Model :**

The identified site in Subarnagiri Reserve Forest Compt. No. 1 over 26.44Ha. is having degraded in nature. The topography is gentle and has poor soil depth. Thus it is proposed to take up ANR with gap plantation @ 200 plants/Ha. over the entire area.

**3. Special Objects of Compensatory Afforestation Scheme are as follows:**

**i.** To restrict the degradation by reducing the biotic interference to barest minimum and reverse the trend towards the process of restoration of vegetation.

**ii.** To develop the forest by providing site-specific silvicultural treatment.

**iii.** To facilitate the boosting of natural regeneration and ensure their establishment.

**iv.** To take up appropriate soil moisture conservation (SMC) measures to improve the soil and moisture regime.

**v.** To improve the bio-diversity of these blocks.

**vi.** To meet the need of the local villagers with regard to firewood and small timber depending upon the productivity (from silvicultural operations like thinning, subsidiary silvicultural operation, climber cutting, cutting of high stumps, double shoot cutting etc.)

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

To achieve the above objectives, the following items of works are mainly prescribed to be taken up

i. Survey & Demarcation of Boundary.

ii. Fencing.

iii. Site Clearance & Planting in gaps

iv. Soil & Moisture Conservation Measures.

v. Protection of Plantation

vi. Peoples Participation

vii. Monitoring & Evaluation Mechanism

**i. Survey & Demarcation of Boundary**: The identified area has been surveyed by DGPS and also map has been prepared. DGPS Coordinates of Survey Stations of Compensatory Afforestation area is enclosed as **Annexure- I.** The area will be demarcated with RCC pillars of size 1.0 m x 10 cm x 10 cm for clear demarcation of the area.

**ii. Fencing**: To protect the plantation from grazing and other biotic interference, it will be provided with barbed wire fencing along the 2.06 km periphery in Subarnagiri RF Compt. No. 1 as per the following details covering 828 numbers of RCC pillars. There will be provision of one RCC pillar erected at every 2.5 meter distance with provision of two extra cross pillars for each corner station points. There will be 7 strands of barbed wire fencing for better protection purpose. The cost estimate for barbed wire fencing has been provided in **Annexure — III.**

**iii. Site Clearance & Planting in gaps**: ANR gap plantation over 26.44 ha shall be taken up with planting of 200 plants in gaps per hectares at spacing of 2.5

m x 2.5 m.. Site clearance and cleaning to be done in the treatment area to create gap for plantation. Silvicultural cleaning by cutting of high stumps, removal of weeds, singling of multiple shoots, removal of plants in congested areas will be done, so that the plants get optimum condition for growth. All post planting measures like casualty replacement, soil working, manuring, fire protection etc. will be undertaken.

a. **Species:** Although indigenous species are to be preferred in the plantation, considering adverse soil & moisture conditions, we may go for hardy exotic species where ever required, so that the plants are able to survive. For success of plantation in interior tribal areas, plantation of fruit and NTFP species plays a great role since economic species have a little value for local people. Considering the topography, soil and moisture availability of the plantation area, the following species will be planted.

| Name of species | Common name | Remarks |
|---|---|---|
| Terminalia arjuna | Arjun | |
| Azadirachta indica | Neem | |
| Pongamia pinata | Karanja | |
| Emblica oficinalis | Amla | |
| Dalbergia sissoo | Sissoo | In lower areas with good soil depth |
| Gmelina arborea | Gambhari | In lower areas with good soil depth |
| Dendrocalamus strictus | Salia Bamboo | In lower areas with good soil depth healthy seedling from rhizomes may be planted. |
| Terminalia tomentosa | Asana | In lower areas with good soil depth |
| Madhuca indica | Mahul | Only two years old seedling may be planted |
| Terminalia belerica | Bahada | |
| Albizia lebbeck | Sirisa | |
| Zizyphus mauritania | Barakoli | In rocky area with low soil depth |
| Acacia catechu | Khaira | |
| Mangifera indica | Mango | In situ planted (direct placing of mango stone in planting site) during pre-monsoon may be adopted in few lower area or where life-saving watering can be done during summer. |
| Syzygium cumini | Jamu | |
| Ficus benghalensis | Bara | |

| | | |
|---|---|---|
| Ficus religiosa | Pipal | |
| Artocarpus heterophyllous | Panasa | |

iv. **Soil and Moisture Conservation Works: -** Since most of the areas are hilly and undulating, half-moon trenches on down-hill side of plants should be constructed. In the slopes, staggered trenches of 2m x 50Cm x 50Cm should be dug in between the planting line along the contours, and the excavated earth be piled on the downhill side to form a bond. The staggered contour trenches will act as place of deposit of eroded soil and check soil erosion. In Nallahs, LBCD structures are to be constructed from top to bottom as per the specific site condition, which will retard the velocity of run-off and be helpful in feeding ground water to the plants planted below it.

v. **Protection of the plantation**: - 7 strand Barbed wire fence with RCC pillars all along the periphery of the plantation will be provided. Few watchers will also be engaged for protection of the plantation. Assistance of V.S.S is necessary for better protection of plantation.

vi. **Peoples Participation**: In the recent times, no scheme shall be effective if the local villagers are not involved in the implementation of the scheme itself. The villagers who are having a right on the NTFP items in the adjoining forest area are to be associated with the implementation of the scheme at all different levels. For that, Van Samrakhyana Samiti (VSS) is proposed to be constituted in all the villages around the Compensatory Afforestation site. The villagers are to be motivated, inspired and above all, explained the benefits they will be getting, if plantation is protected by them.

vii. **Monitoring & Evaluation Mechanism**: - The scheme shall be executed by the Divisional Forest Officer, Boudh Division with his staff and all prescribed records are to be maintained. In addition to internal monitoring by Forest Officers of State Government, a Monitoring Committee under item no. 3.4 (iii) of consolidated guidelines under F.C Act 1980 issued by MoEF, shall be established with a nominee of the Central Government to oversee that the stipulations, including those pertaining to Compensatory Afforestation are carried out.

05/11/20
Divisional Forest Officer
Boudh Forest Division
Divisional Forest Officer
Boudh Division

# SCHEME-I

## COST NORM FOR RAISING OF COMPENSATORY AFFORESTATION PLANTATION IN ANR MODE over 26.44 Ha. @ 200 PLANTS PER HECTARE AT SUBARNAGIRI RF COMPT. NO. 1

## WAGE RATE Rs. 308.00/- PER MANDAY

## Vide Notification No. 6100/LC, Bhubaneswar dt. 21.10.2020 of Labour Commissioner, Odisha

## ESTIMATE OF COST FOR 1.00HA. UNDER ANR GAP PLANTATION MODEL

### 0th year (Advance work) pre-planting operation

| Sl. No. | Item of work | Preferable period of execution | Person days | Labour (Rs) | Material (Rs) | Total ( Rs) |
|---|---|---|---|---|---|---|
| 1 | Survey, Demarcation & pillar posting. GPS Reading with mapping | Nov/Dec | 2 | 616.00 | 0.00 | 616.00 |
| 2 | Site Preparation | Nov/Dec | 2 | 616.00 | 0.00 | 616.00 |
| 3 | Silvi-cultural Operation including clearance of weed, climber cutting, high stump cutting, singling of shoots etc. | Jan/Feb | 5 | 1540.00 | 0.00 | 1540.00 |
| 4 | Nursery cost ( 6 months old seedling) part @ Rs. 13.47/- seedling (Rs.9.70 in 0th year + Rs. 3.77 in 1st year) for 220 seedlings (200+20) | Jan-Mar | 5.5 | 1694 | 367.00 | 2061.00 |
| 5 | Contingency and Unforeseen Expenditures | | 0 | 0.00 | 133.00 | 133.00 |
| | **SUB-TOTAL** | | **14.5** | **4466.00** | **500.00** | **4966.00** |
| 6 | Monitoring & Supervision Charges 5% of the total cost | | | | | 248.00 |
| | **Grand Total** | | | **4466.00** | **500.00** | **5214.00** |
| **1ST YEAR OPERATION** | | | | | | |
| 1 | Nursery Cost (6 months old seedling) balance @ Rs. 3.77 for 220 seedlings | Apr-Jul | 2.5 | 770.00 | 128.00 | 898.00 |
| 2 | Pitting 30 cm cube size | Feb/Mar | 6 | 1848.00 | 0.00 | 1848.00 |
| 3 | Carriage and planting including casualty replacement | Jul/Aug | 5 | 1540.00 | 0.00 | 1540.00 |
| 4 | Complete weeding, Soil working, Manuring | Aug/Sep | 6 | 1848.00 | 0.00 | 1848.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | Cost of Vermi compost @ 200gms / Plant @Rs.20/- per kg = Rs. 1600 and Granular insecticide 5 gms/ plant @ Rs. 80/- per kg. Rs. 160.00 | | 0 | 0.00 | 880.00 | 880.00 |
| 6 | Cost of Chemical fertilizer<br>a. Urea 70 gms/ plant in two subsequent doses @ Rs. 6/- per kg = 168.00<br>b. NPK 50 gms / plant @ Rs. 24/- per kg = Rs. 480.00 as basal dose | | 0 | 0.00 | 324.00 | 324.00 |
| 7 | Silvicultural Operation involving clearance of weeds, cutting of climbers, singling of shoots etc. | Sep/Oct | 15 | 4620.00 | 0.00 | 4620.00 |
| 8 | Soil Conservation Measures (Staggered trenches of dimension 2m x 0.5m x 0.5m @ 60 nos. per ha) or its equivalent | Sep/Oct | 20 | 6160.00 | 0.00 | 6160.00 |
| 9 | Fireline Tracing and Inspection Path | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 10 | Watch & Ward | Aug/Mar | 7 | 2156.00 | 0.00 | 2156.00 |
| 11 | Contingency and Unforeseen Expenditures | | 0 | 0.00 | 304.00 | 304.00 |
| | **SUB-TOTAL** | | **64.5** | **19866.00** | **1636.00** | **21502.00** |
| 12 | Monitoring & Supervision Charges 5% of the total cost | | | | | 1075.00 |
| | **Grand Total** | | | **19866.00** | **1636.00** | **22577.00** |
| **2nd YEAR OPERATION** | | | | | | |
| 1 | Casualty replacement including cost of seedling, carriage and planting | Jul/Aug | 1 | 308.00 | 248.60 | 556.60 |
| 2 | Complete weeding and cultural operations | Sep/Oct | 2 | 616.00 | 0.00 | 616.00 |
| 3 | Soil Working and manuring | Sep/Oct | 2 | 616.00 | 0.00 | 616.00 |
| 4 | Cost of Fertilizer and insecticide Vermi-compost 200gms/plant @ Rs. 20/- per Kg = Rs. 1600.00 Granular Insecticides 5gms/plant for 40 plants 200gms @ Rs.80/- per kg = Rs. 16.00 | Sep/Oct | 0 | 0.00 | 808.00 | 808.00 |
| 5 | Soil Conservation Measures (Renovation of staggered trenches etc.) | Sep/Oct | 8 | 2464.00 | 0.00 | 2464.00 |
| 6 | Fireline Tracing and Inspection Path | Feb/Mar | 1 | 308.00 | 0.00 | 308.00 |
| 7 | Watch & Ward (Whole Year) | Apr-Mar | 7 | 2156.00 | 0.00 | 2156.00 |
| 8 | Contingency and Unforeseen Expenditures | | 0 | 0 | 181.00 | 181.00 |
| | **SUB-TOTAL** | | **21** | **6468.00** | **1238.00** | **7706.00** |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | Monitoring & Supervision Charges 5% of the total cost | | | | | 385.00 |
| | **Grand Total** | | | **6468.00** | **1238.00** | **8091.00** |
| **3rd YEAR OPERATION** | | | | | | |
| 1 | Complete weeding and cultural operations | Aug/Sep | 1 | 308.00 | 0.00 | 308.00 |
| 2 | Soil Working | Aug/Sep | 1 | 308.00 | 0.00 | 308.00 |
| 3 | Fireline Tracing and Inspection Path | Feb/Mar | 1 | 308.00 | 0.00 | 308.00 |
| 4 | Watch & Ward (Whole Year) | Apr-Mar | 7 | 2156.00 | 0.00 | 2156.00 |
| 5 | Contingency and unforeseen items | | | 0.00 | 200.00 | 200.00 |
| | **SUB-TOTAL** | | **10** | **3080.00** | **200.00** | **3280.00** |
| 6 | Monitoring & Supervision Charges 5% of the total cost | | | | | 164.00 |
| | **Grand Total** | | | **3080.00** | **200.00** | **3444.00** |
| **4th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 1 | 308.00 | 0.00 | 308.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 2 | 616.00 | 0.00 | 616.00 |
| | **SUB-TOTAL** | | **3** | **924.00** | **0.00** | **924.00** |
| 3 | Monitoring & Supervision Charges 5% of the total cost | | | | | 46.00 |
| | **Grand Total** | | | **924.00** | **0.00** | **970.00** |
| **5th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 1 | 308.00 | 0.00 | 308.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 2 | 616.00 | 0.00 | 616.00 |
| | **SUB-TOTAL** | | **3** | **924.00** | **0.00** | **924.00** |
| 3 | Monitoring & Supervision Charges 5% of the total cost | | | | | 46.00 |
| | **Grand Total** | | | **924.00** | **0.00** | **970.00** |
| **6th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 1 | 308.00 | 0.00 | 308.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 2 | 616.00 | 0.00 | 616.00 |
| | **SUB-TOTAL** | | **3** | **924.00** | **0.00** | **924.00** |
| 3 | Monitoring & Supervision Charges 5% of the total cost | | | | | 46.00 |
| | **Grand Total** | | | **924.00** | **0.00** | **970.00** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **7th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 1 | 308.00 | 0.00 | 308.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 2 | 616.00 | 0.00 | 616.00 |
| | **SUB-TOTAL** | | **3** | **924.00** | **0.00** | **924.00** |
| 3 | Monitoring & Supervision Charges 5% of the total cost | | | | | 46.00 |
| | **Grand Total** | | | **924.00** | **0.00** | **970.00** |
| **8th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 1 | 308.00 | 0.00 | 308.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 2 | 616.00 | 0.00 | 616.00 |
| | **SUB-TOTAL** | | **3** | **924.00** | **0.00** | **924.00** |
| 3 | Monitoring & Supervision Charges 5% of the total cost | | | | | 46.00 |
| | **Grand Total** | | | **924.00** | **0.00** | **970.00** |
| **9th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 1 | 308.00 | 0.00 | 308.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 2 | 616.00 | 0.00 | 616.00 |
| | **SUB-TOTAL** | | **3** | **924.00** | **0.00** | **924.00** |
| 3 | Monitoring & Supervision Charges 5% of the total cost | | | | | 46.00 |
| | **Grand Total** | | | **924.00** | **0.00** | **970.00** |
| **10th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 1 | 308.00 | 0.00 | 308.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 2 | 616.00 | 0.00 | 616.00 |
| | **SUB-TOTAL** | | **3** | **924.00** | **0.00** | **924.00** |
| 3 | Monitoring & Supervision Charges 5% of the total cost | | | | | 46.00 |
| | **Grand Total** | | | **924.00** | **0.00** | **970.00** |

## ABSTRACT FOR SCHEME-I

| Sl. No. | Year | No. Person Days | Labour cost @ 308.00/- per day | Material (Rs.) | Monitoring & Supervision Charge 5% of the total cost | **Total Cost ( Rs.)** |
|---|---|---|---|---|---|---|
| **1** | 0th Year (Advance Year) | 14.5 | 4466.00 | 500.00 | 248.00 | **5214.00** |
| **2** | 1st Year (Creation Year) | 64.5 | 19866.00 | 1636.00 | 1075.00 | **22577.00** |
| **3** | 2nd Year | 21 | 6468.00 | 1238.00 | 385.00 | **8091.00** |
| **4** | 3rd Year | 10 | 3080.00 | 200.00 | 164.00 | **3444.00** |
| **5** | 4th Year | 3 | 924.00 | 0.00 | 46.00 | **970.00** |
| **6** | 5th Year | 3 | 924.00 | 0.00 | 46.00 | **970.00** |
| **7** | 6th Year | 3 | 924.00 | 0.00 | 46.00 | **970.00** |
| **8** | 7th Year | 3 | 924.00 | 0.00 | 46.00 | **970.00** |
| **9** | 8th Year | 3 | 924.00 | 0.00 | 46.00 | **970.00** |
| **10** | 9th Year | 3 | 924.00 | 0.00 | 46.00 | **970.00** |
| **11** | 10th Year | 3 | 924.00 | 0.00 | 46.00 | **970.00** |
| **Total** | | **131** | **40348.00** | **3574.00** | **2194.00** | **46116.00** |
| **Total Cost Norm per ha.** | | | | | | **46116.00** |
| **Total Cost of plantation (26.44 Ha.)** | | | | | | **1219307.04** |
| **Sub Total (A)** | | | | **Say Rs.** | | **1219307.00** |

05/11/20
Divisional Forest Officer
Boudh Forest Division
Divisional Forest Officer
Boudh Division

**SCHEME FOR COMPENSATORY AFFORESTATION OF 13.26 HA OF DEGRADED REVENUE FOREST LAND IDENTIFIED IN BALAKIRA VILLAGE , MUNDAPADA RI CIRCLE UNDER BOUDH TAHASIL, KHATA NO.-287, PLOT NO. 1372 AND 1374 , KISSAM GRAMYA JUNGLE, UNDER BOUDH RANGE IN BOUDH DISTRICT TO ACCOMMODATE 21212 NOS. OF SEEDLINGS IN LEIU OF 13.218 HA. DIVERSION OF FORST LAND FOR THE CONSTRUCTION OF KHURDA ROAD–BOLANGIR NEW B.G. RAIL LINK PROJECT OF EAST COAST RAILWAY, BHUBANESWAR.**

## INTRODUCTION

The Indian Railways have taken up a project of construction of a new B. G. line having an approximate length of 289 km. connecting Khurda Road station on Howrah-Chennai main line to Bolangir situated on Titlagarh-Sambalpur-Jharsuguda branch line.

The line falls entirely in Odisha State and will traverse through six districts of Odisha viz., Puri, Khurda, Nayagarh, Boudh, Sonepur and Bolangir. It will connect the coastal Odisha with Western Odisha leading to emotional and cultural integration of both the parts. Moreover, it will reduce the distance to New Delhi, Mumbai and Western India by 140 Km. from Bhubaneswar and Puri, the state capital and cultural capital of Orissa respectively.

The Industrial and economic growth of the area under which this line falls has not progressed due to poor transport facilities. The concerned area is majorly inhabited by poor and underprivileged population of the society who spend their lives on the edge of modernization who might have never seen a train till date. No major industries can be observed and the region is not at all urbanized. However, there are a number of medium and small scale as well as cottage industries which could prosper with the commissioning of the line. Granite, Graphite, Quartz, Limestone etc. are available in large quantities in the region and the industry seems to be putting efforts to exploit the mineral resources in a productive manner. The line on being commissioned could give further imputes for growth and modernization of the alluded zone.

## LAND INVOLVED

This project extends over an area of 13.218Ha. forest land for construction of new BG Rail line from 180 Km. to 238 Km. of Khurdha Road-Bolangir Rail link Project. Hence, this 13.218 Ha. of forest land has been proposed for Diversion under Forest (Conservation) Act, 1980 in lieu of which the Compensatory Afforestation will raised over an area of 13.26 Ha. in degraded revenue forest kissam land in Boudh Forest Division to accommodate 21212 nos. of seedlings.

**ALLOCATION OF GOVT. LAND**

The Scheme of Compensatory Afforestation over an area of 13.26 Ha. is prepared in lieu of diversion of forest land over extent of 13.218 Ha. for the construction of Khurda Road – Bolangir New BG Railway line. The Compensatory Afforestation area comes in Balakira Mouza of Mundapada R.I Circle under Boudh Tahasil, Khata No.-287, Plot No. 1372 & 1374 , Kissam Gramya Jungle under Boudh Range of Boudh Division in Boudh Dist.. The area so selected is proposed for Compensatory Afforestation in AR (Block Plantation) mode @ 1600 plants/Ha..

The scheme for raising of Compensatory Afforestation in AR (Block Plantation) mode @ 1600 plants/Ha. over an area of 13.26Ha. of degraded revenue forest kissam land in Balakira Mouza of Mundapada R.I Circle under Boudh Tahasil, Khata No.-287, Plot No. 1372 & 1374 , Kissam Gramya Jungle under Boudh Range of Boudh Division in Boudh Dist. with maintenance up to ten years (with $0^{th}$ year) in the current wage rate @ Rs. 308/- per manday.

1. **DETAILS OF SELECTION OF SITE**

   **District : Boudh.**

   **Tahasil : Boudh**

   **RI Circle : Mundapada**

   **Village : Balakira**

   **Khata No. 287 & Plot No. 1372 & 1374.**

The Compensatory Afforestation has been indentified in Balakira Village over 13.26 Ha. under Boudh Tahasil of Boudh District. The site located on Survey of India Open Series Topo sheet No. F 45 S/1 confined within LATITUDE: 20°46'36" & 20°46'50", LONGITUDE : 84°08'49" & 84°09'10" and indicated on the map enclosed as **Annexure –II**. The proposed area is free from encroachment, other encumbrances and found suitable for Block plantation.

1. **Description of Area :**

**I.** The identified Degraded forest area is under the possession of Forest Department and classified as Gramya Jungle.

**II.** **Soil type:** Laterite. Some patches support swallow soil, mixed sand and exposed rock within the site.

**III.** **Topography :**

**a. Hilly/Undulating/Plain :** The topographical configuration of the identified site is plain flat land.

**b. Slope:** The site selected for Compensatory Afforestation have medium to gentle slope.

**IV.** Whether the area is bearing any root stock of vegetation: The site selected for Compensatory Afforestation plain flat land and having scanty root stock vegetations.

**V.** **Temperature :** The area experiences cold weather between November – January when the temperature drops to less than 16° C. the temperature rises steadily from January onwards reaching 32° C to 48° C in summer ( May). So it is under tropical condition with limited rainy days.

**VI.** **Climate & Rainfall:** The area has tropical climate with monsoon rains from June to September and occasional rains during the autumn. This area also experiences occasional gutsy wind to heavy thunderstorms during summer season (April to June). Monsoon breaks out in early to middle of June and continues up to September. The average annual rainfall is about 1600 mm under the influence of south west monsoon. On average, there are about 100 rainy days. The humidity is maximum in the month of July to August (90%) and minimum in February (36%). The wind velocity varies between 40 KMPH and 80 KMPH, although occasional higher values have also been reported. Lightening incidents are rarely reported in this area.

## 2. Plantation Model :

The identified site in Balakira Village Gramya Jungle over 13.26Ha. is plain flat land. The topography is gentle and has good soil depth. Thus it is proposed to take up AR (Block) plantation @ 1600 plants per ha. over the entire area to accommodate 21212 nos. of seedlings.

## 3. Special Objects of Compensatory Afforestation Scheme are as follows:

i. To restrict the degradation by reducing the biotic interference to barest minimum and reverse the trend towards the process of restoration of vegetation.

ii. To develop the forest by providing site-specific silvicultural treatment.

iii. To facilitate the boosting of natural regeneration and ensure their establishment.

iv. To take up appropriate soil moisture conservation (SMC) measures to improve the soil and moisture regime.

v. To improve the bio-diversity of these Gramya Jungle.

vi. To meet the need of the local villagers with regard to firewood and small timber depending upon the productivity (from silvicultural operations like thinning, subsidiary silvicultural operation, climber cutting, cutting of high stumps, double shoot cutting etc.)

**Item of works to be taken up**: To achieve the above objectives, the following items of works are mainly prescribed to be taken up.

i. Survey & Demarcation of Boundary.

ii. Fencing.

iii. Site Clearance & Planting

iv. Soil & Moisture Conservation Measures.

v. Protection of Plantation

vi. Peoples Participation

vii. Monitoring & Evaluation Mechanism

**i. Survey & Demarcation of boundary**: The identified area is to be surveyed by GPS and DGPS reading of each pillar will be taken. Area will be demarcated with RCC pillars of size 1.0 m x 10 cm x 10 cm for clear demarcation of the area. DGPS Coordinates of survey stations of Compensatory Afforestation area is enclosed as **Annexure- II.**

**ii. Fencing**: To protect the plantation from grazing and other biotic interference, it will be provided with barbed wire fencing along the 2.211 km periphery in Balakira village under Boudh Tahasil as per the following details covering 1062 numbers of pillars. There will be provision of one RCC pillar erected at every 2.5 meter distance with provision of two extra cross pillars for each corner station points. There will be 7 strands of barbed wire fencing for better protection purpose. The cost estimate for barbed wire fencing has been provided in **Annexure — III.**

**iii. Site Clearance and Planting**: AR (Block) plantation over 13.26 Ha. shall be taken up with planting of 1600 plants per hectare at spacing of 2.5 m x 2.5 m.. Site clearance, removal, uprooting of weeds and climbers will be done in the C.A area. All post planting measures like casualty replacement, soil working, manuring, fire protection etc. will be undertaken.

**Species:** Although indigenous species are to be preferred in the plantation, considering adverse soil & moisture conditions, we may go for hardy exotic species where required so that the plants are able to survive. For success of plantation in interior tribal areas, plantation of fruit and NTFP species plays a great role since economic species have a little value for local people. Considering the topography, soil and moisture availability of the plantation area, the following species will be planted.

| Name of species | Common name | Remarks |
|---|---|---|
| Terminalia arjuna | Arjun | |
| Azadirachta indica | Neem | |
| Pongamia pinata | Karanja | |
| Emblica oficinalis | Amla | |
| Dalbergia sissoo | Sissoo | In lower areas with good soil depth |
| Gmelina arborea | Gambhari | In lower areas with good soil depth |
| Dendrocalamus strictus | Salia Bamboo | In lower areas with good soil depth healthy seedling from rhizomes may be planted. |
| Terminalia tomentosa | Asana | In lower areas with good soil depth |
| Madhuca indica | Mahul | Only two years old seedling may be planted |
| Terminalia belerica | Bahada | |
| Albizia lebbeck | Sirisa | |
| Zizyphus mauritania | Barakoli | In rocky area with low soil depth |
| Acacia catechu | Khaira | |
| Mangifera indica | Mango | In situ planted (direct placing of mango stone in planting site) during pre-monsoon may be adopted in few lower area or where life-saving watering can be done during summer. |
| Syzygium cumini | Jamu | |
| Ficus benghalensis | Bara | |
| Ficus religiosa | Pipal | |

| | | |
|---|---|---|
| Artocarpus heterophyllous | Panasa | |

viii. **Soil and Moisture Conservation Works: -** Since most of the areas are hilly and undulating, half-moon trenches on down-hill side of plants should be constructed. In the slopes, staggered trenches of 2m x 50Cm x 50Cm should be dug in between the planting line along the contours, and the excavated earth be piled on the downhill side to form a bond. The staggered contour trenches will act as place of deposit of eroded soil and check soil erosion. It will retard the velocity of run-off and be helpful in feeding ground water to the plants planted below it.

ix. **Protection of the plantation**: - 7 strand Barbed wire fence with RCC pillars all along the periphery of the plantation will be provided. Few watchers will also be engaged for protection of the plantation. Assistance of V.S.S is necessary for better protection of plantation.

x. **Peoples Participation**: In the recent times, no scheme shall be effective if the local villagers are not involved in the implementation of the scheme itself. The villagers who are having a right on the NTFP items in the adjoining forest area are to be associated with the implementation of the scheme at all different levels. For that, Van Samrakhyana Samiti (VSS) is proposed to be constituted in all the villages around the Compensatory Afforestation site. The villagers are to be motivated, inspired and above all, explained the benefits they will be getting, if plantation is protected by them.

iv. **Monitoring & Evaluation Mechanism**: - The scheme shall be executed by the Divisional Forest Officer, Boudh Division with his staff and all prescribed records are to be maintained. In addition to internal monitoring by Forest Officers of State Government, a Monitoring Committee under item no. 3.4 (iii) of consolidated guidelines under F.C Act 1980 issued by MoEF, shall be established with a nominee of the Central Government to oversee that the stipulations, including those pertaining to Compensatory Afforestation are carried out.

05/11/20
Divisional Forest Officer
Boudh Forest Division
Divisional Forest Officer
Boudh Division

# SCHEME-II

## COST NORM FOR RAISING OF COMPENSATORY AFFORESTATION WITH AR (BLOCK) PLANTATION MODE @ 1600 PLANTS PER HECTARE OVER 13.26 Ha. in the village Balakira Khata No. 287 and Plot No. 1372 & 1374 under Boudh Range

## WAGE RATE Rs. 308.00/- PER DAY

## Vide Notification No. 6100/LC, Bhubaneswar dt. 21.10.2020 of Labour Commissioner, Odisha

## ESTIMATE OF COST FOR 1.00HA. UNDER AR PLANTATION MODEL

## $0^{th}$ year (Advance work) pre-planting operation

| Sl. No. | Item of work | Preferable period of execution | Person days | Labour (Rs) | Material (Rs) | Total ( Rs) |
|---|---|---|---|---|---|---|
| 1 | Survey, Demarcation & pillar posting. GPS Reading with mapping | Nov/Dec | 2 | 616.00 | 0.00 | 616.00 |
| 2 | Site Preparation | Nov/Dec | 12 | 3696.00 | 0.00 | 3696.00 |
| 3 | Alignment and stacking of pit | Jan/Feb | 2 | 616.00 | 0.00 | 616.00 |
| 4 | Digging of pits (30 cm cube) | Feb/Mar | 40 | 12320.00 | 0.00 | 12320.00 |
| 5 | Nursery cost ( 6 months old seedling) part @ Rs. 13.47/- seedling (Rs.9.70 in $0^{th}$ year + Rs. 3.77 in $1^{st}$ year) for 1760 seedlings (1600+160) | Jan-Mar | 44 | 13552.00 | 2939.00 | 16491.00 |
| | **Sub Total** | | **100** | **30800.00** | **2939.00** | **33739.00** |
| 6 | Monitoring & Supervision Charge 5% of the total cost | | | | | 1687.00 |
| | **Grand Total** | | **100** | **30800.00** | **2939.00** | **35426.00** |
| **$1^{ST}$YEAR /PLANTING YEAR** | | | | | | |
| 1 | Nursery Cost (6 months old seedling) balance @ Rs. 3.77 for 1760 seedlings | Apr-Jul | 21.5 | 6622.00 | 593.00 | 7215.00 |
| 2 | Carriage and planting including casualty replacement and application of insecticides, manure etc. | Jul/Aug | 21 | 6468.00 | 0.00 | 6468.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | Cost of insecticide and fertilizer<br>(a) NPK@50gms /plant as basal dose = 80kg @ Rs. 24/- per kg = 1920.00<br>(b)Urea @ 70gms/plant in two subsequent doses @ Rs. 6/- per kg = Rs. 672.00<br>(c) Granular insecticide (Themet, Forate etc.) @ 5gms / plant @ Rs. 80/- per kg = 640 | | 0 | 0.00 | 3232.00 | 3232.00 |
| 4 | 1st weeding( complete weeding) | Aug/Sep | 7 | 2156.00 | 0.00 | 2156.00 |
| 5 | Manuring Urea 35gm | Aug/Sep | 5 | 1540.00 | 0.00 | 1540.00 |
| 6 | 2nd weeding( complete weeding) | Sep/Oct | 5 | 1540.00 | 0.00 | 1540.00 |
| 7 | Soil working (50cms. Radius around plants ) & manuring Urea 35gm per plant | Sep/Oct | 7 | 2156.00 | 0.00 | 2156.00 |
| 8 | Soil conservation measures in the fron ofstraggerd trenches of size 2m x0.5mx0.5m @ 30 nos. per Ha. | Sep/Oct | 10 | 3080.00 | 0.00 | 3080.00 |
| 9 | Fireline Tracing and Inspection Path | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 10 | Watch & Ward | Aug/Mar | 7 | 2156.00 | 0.00 | 2156.00 |
| | **Sub Total** | | **86.5** | **26642.00** | **3825.00** | **30467.00** |
| 11 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 1523.00 |
| | **Grand Total** | | **86.5** | **26642.00** | **3825.00** | **31990.00** |
| **2nd YEAR MAINTENANCE** | | | | | | |
| 1 | Casualty replacement (10%)with Nursery cost | Jul/Aug | 4 | 1232.00 | 1988.80 | 3220.80 |
| 2 | weeding (Complete weeding) | Sep/Oct | 6 | 1848.00 | 0.00 | 1848.00 |
| 3 | Cost of Fertilizer and insecticide ( NPK @ 70gms/Plant for 1600 plants) = 112Kg, Rs. 24/- per Kg and insecticide @ 5 gms/plants for 160 plants = 800gms @ Rs. 80/- per kg | | 0 | 0.00 | 2752.00 | 2752.00 |
| 4 | Soil working (50cms Radius around plants) | Oct/Nov | 7 | 2156.00 | 0.00 | 2156.00 |
| 5 | Application of fertilizer & insecticide | Sep/Oct | 4 | 1232.00 | 0.00 | 1232.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 | Fireline Tracing (2 m. wide fire line over 400 m long) | Sep/Oct | 3 | 924.00 | 0.00 | 924.00 |
| 7 | Watch & Ward | Apr-Mar | 15 | 4620.00 | 0.00 | 4620.00 |
| | **Sub Total** | | **39** | **12012.00** | **4741.00** | **16753.00** |
| 8 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 838.00 |
| | **Grand Total** | | **39** | **12012.00** | **4741.00** | **17591.00** |
| **3rd YEAR MAINTENANCE** | | | | | | |
| 1 | Weeding and application of fertilizer | Aug/Sep | 7 | 2156.00 | 0.00 | 2156.00 |
| 2 | Coast of fertilizer (NPK @ 50gms /plant) @ Rs. 24/- per kg. | | 0 | 0.00 | 1920.00 | 1920.00 |
| 3 | Soil working (50cms Radius around plants) & application of fertilizer | Oct/Nov | 7 | 2156.00 | 0.00 | 2156.00 |
| 4 | Fireline Tracing (2 m. wide fire line over 400 m long) | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 5 | Watch & Ward (Whole Year) | Apr-Mar | 15 | 4620.00 | 0.00 | 4620.00 |
| | **Sub Total** | | **32** | **9856.00** | **1920.00** | **11776.00** |
| 6 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 589.00 |
| | **Grand Total** | | **32** | **9856.00** | **1920.00** | **12365.00** |
| **4th YEAR OPERATION** | | | | | | |
| 1 | Fireline Fireline Tracing (2 m. wide fire line over 400 m long) & cultural operation | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 15 | 4620.00 | 0.00 | 4620.00 |
| | **Sub Total** | | **18** | **5544.00** | **0.00** | **5544.00** |
| 3 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 277.00 |
| | **Grand Total** | | **18** | **5544.00** | **0.00** | **5821.00** |
| **5th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 15 | 4620.00 | 0.00 | 4620.00 |
| | **Sub Total** | | **18** | **5544.00** | **0.00** | **5544.00** |
| 3 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 277.00 |
| | **Grand Total** | | **18** | **5544.00** | **0.00** | **5821.00** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **6th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 15 | 4620.00 | 0.00 | 4620.00 |
| | **Sub Total** | | **18** | **5544.00** | **0.00** | **5544.00** |
| 3 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 277.00 |
| | **Grand Total** | | **18** | **5544.00** | **0.00** | **5821.00** |
| **7th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 15 | 4620.00 | 0.00 | 4620.00 |
| | **Sub Total** | | **18** | **5544.00** | **0.00** | **5544.00** |
| 3 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 277.00 |
| | **Grand Total** | | **18** | **5544.00** | **0.00** | **5821.00** |
| **8th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 15 | 4620.00 | 0.00 | 4620.00 |
| | **Sub Total** | | **18** | **5544.00** | **0.00** | **5544.00** |
| 3 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 277.00 |
| | **Grand Total** | | **18** | **5544.00** | **0.00** | **5821.00** |
| **9th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 15 | 4620.00 | 0.00 | 4620.00 |
| | **Sub Total** | | **18** | **5544.00** | **0.00** | **5544.00** |
| 3 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 277.00 |
| | **Grand Total** | | **18** | **5544.00** | **0.00** | **5821.00** |
| **10th YEAR OPERATION** | | | | | | |
| 1 | Fireline Tracing and Inspection Path | Feb/Mar | 3 | 924.00 | 0.00 | 924.00 |
| 2 | Watch & Ward and cultural operations | Apr-Mar | 15 | 4620.00 | 0.00 | 4620.00 |
| | **Sub Total** | | **18** | **5544.00** | **0.00** | **5544.00** |
| 3 | Monitoring & Supervision Charge 5% of the total cost | | 0 | 0.00 | 0.00 | 277.00 |
| | **Grand Total** | | **18** | **5544.00** | **0.00** | **5821.00** |

## ABSTRACT FOR SCHEME-II

| Sl. No. | Year | No. Person Days | Labour cost @ 308.00/- per day | Material (Rs.) | Monitoring & Supervision Charge 5% of the total coast | **Total Cost ( Rs.)** |
|---|---|---|---|---|---|---|
| 1 | 0th Year (Advance Year) | 100 | 30800.00 | 2939.00 | 1687.00 | **35426.00** |
| 2 | 1st Year (Creation Year) | 86.5 | 26642.00 | 3825.00 | 1523.00 | **31990.00** |
| 3 | 2nd Year | 39 | 12012.00 | 4741.00 | 838.00 | **17591.00** |
| 4 | 3rd Year | 32 | 9856.00 | 1920.00 | 589.00 | **12365.00** |
| 5 | 4th Year | 18 | 5544.00 | 0.00 | 277.00 | **5821.00** |
| 6 | 5th Year | 18 | 5544.00 | 0.00 | 277.00 | **5821.00** |
| 7 | 6th Year | 18 | 5544.00 | 0.00 | 277.00 | **5821.00** |
| 8 | 7th Year | 18 | 5544.00 | 0.00 | 277.00 | **5821.00** |
| 9 | 8th Year | 18 | 5544.00 | 0.00 | 277.00 | **5821.00** |
| 10 | 9th Year | 18 | 5544.00 | 0.00 | 277.00 | **5821.00** |
| 11 | 10th Year | 18 | 5544.00 | 0.00 | 277.00 | **5821.00** |
| **Total** | | **383.5** | **118118.00** | **13425.00** | **6576.00** | **138119.00** |
| **Total Cost Norm per ha.** | | | | | | **138119.00** |
| **Total Cost of plantation (13.26 Ha.)** | | | | | | **1831457.94** |
| **Sub Total (A)** | | | | **Say Rs.** | | **1831458.00** |

## B. ADDITIONAL COST PROPOSED

| Sl. No. | Particulars | **SCHEME-I** C.A over 26.44 Ha. in ANR mode @200 plants/Ha. (Amount in Rs.) | **SCHEME-II** C.A over 13.26 Ha. in AR (Block) plantation mode @1600 plants/ Ha. (Amount in Rs.) | Total Amount (in Rs.) |
|---|---|---|---|---|
| 1 | Barbed wire fencing @ Rs. 692/- over (2060 Mtr. + 2211 Mtr.), Maintenance of 3 years including provision of 1 no. Iron Gate. | 14,25,520 | 15,30,012 | 29,55,532 |
| 2 | Soil Moisture Conservation with LBCD of size ( Length 5 Mtr, Height 1Mtr, Top with 1Mtr, Bottom width 7Mtr, Approne 1Mtr.) of 25 nos. @22537/- per LBCD | 5,63,425 | 0 | 6,04,266 |
| | Extra Staggered trench @ 30 nos. per Ha. @ 10 M.D per Ha. (25% of the Plantation cost) | 0 | 40,841 | |
| 3 | Infrastructure (In Kind) for office modernization (1 no. Bolero Vehicle, Laptop, DG Set, Camera, GPS, Invoter, (Lum-sum) | 7,00,000 | 8,00,000 | 15,00,000 |
| 4 | Additional incentive (3%) for VSS/Fr./FG Proposed for more than 80% survival and very good growth during 4$^{th}$ year of maintenance as per recommendation of DFO and RCCF. | 36,580 | 55,000 | 91,580 |
| 5 | Additional EPA expenses if implemented through VSS at rate Rs. 1200/- in 0$^{th}$ year, Rs. 2400/- in 1$^{st}$ year, Rs. 1800/- in 2$^{nd}$ year, Rs. 600/- in 3$^{rd}$ year, Rs.600/- in 4$^{th}$ year, Rs. 600/- in 5$^{th}$ year, Rs 600/- in 6$^{th}$ year, Rs. 600/- in 7$^{th}$ year, Rs. 600/- in 8$^{th}$ year, Rs. 600/- in 9$^{th}$ year, Rs. 600/- in 10$^{th}$ year, @ Rs. 10200/- | 2,69,688 | 1,34,844 | 4,04,532 |
| 6 | Cost of Preparation and erection of 04 nos. sign board with maintenance of boundary pillar. (LS) | 1,00,000 | 1,00,000 | 2,00,000 |
| | **Sub Total (B)** | **11,95,232** | **11,60,712** | **57,55,910** |
| Add Plantation Cost (A) | | 12,19,307 | 18,31,458 | 30,50,765 |
| **(A+B)** | | **24,14,539** | **29,92,170** | **88,06,675** |

## C. Over Head & Contingencies

| Sl. No. | Particulars | Amount (Rs) |
|---|---|---|
| 1. | Office Expenses, Stationery, TA/DA, Repairer of Vehicles/ Computer etc @ 5% of above | 4,40,334 |

## TOTAL PROJECT COST OF COMPENSATORY AFFORESTATION

| Sl. No. | Particulars | Amount (Rs) |
|---|---|---|
| 1. | Plantation Cost (26.44 Ha. @ 200 plants per Ha. & 13.26 Ha. @ 1600 Plants/ Ha.) | 30,50,765 |
| 2. | Total Additional cost | 57,55,910 |
| 3. | Total Overhead & Contingencies | 4,40,334 |
| | **Sub Total** | **92,47,009** |
| | Add 20% escalation | 18,49,401.80 |
| | **Grand Total** | **1,10,96,410.80** |
| | **Say Rs.** | **1,10,96,411** |

(Rupees One crore ten lakh ninety six thousand four hundred and eleven) only.

05/11/20
Divisional Forest Officer
Boudh Forest Division
Divisional Forest Officer
Boudh Division

**ANNEXURE - I**

# CO-ORDINATES AND BEARINGS OF THE DEMARCATING CONCRETE PILLARS AROUND COMPENSATORY AFFORESTATION AREA

| Sl. No. | PILLAR No. | Geodatic Co-ordinates | | Distance Between | Distance in Meter | Fore Bearing | | | | Back Bearing | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Latitude | Longitude | | | Deg. | d | m | s | Deg | d | m | s |
| 1 | CA-1 | 20°39'21.49200"N | 84°11'02.68800"E | | 0.000 | | | | | | | | |
| 2 | CA-2 | 20°39'20.08800"N | 84°11'04.20000"E | CA-1-CA-2 | 61.588 | 315.99 | 315 | 59 | 11.95 | 135.99 | 135 | 59 | 11.95 |
| 3 | CA-3 | 20°39'17.17200"N | 84°11'06.10800"E | CA-2-CA-3 | 104.705 | 329.22 | 329 | 13 | 20.89 | 149.22 | 149 | 13 | 20.89 |
| 4 | CA-4 | 20°39'14.43600"N | 84°11'07.15200"E | CA-3-CA-4 | 90.341 | 341.33 | 341 | 19 | 59.11 | 161.33 | 161 | 19 | 59.11 |
| 5 | CA-5 | 20°39'12.13200"N | 84°11'08.01600"E | CA-4-CA-5 | 74.990 | 341.33 | 341 | 19 | 59.11 | 161.33 | 161 | 19 | 59.11 |
| 6 | CA-6 | 20°39'10.33200"N | 84°11'09.49200"E | CA-5-CA-6 | 70.021 | 323.46 | 323 | 27 | 32.08 | 143.46 | 143 | 27 | 32.08 |
| 7 | CA-7 | 20°39'08.31600"N | 84°11'11.14800"E | CA-6-CA-7 | 77.513 | 323.46 | 323 | 27 | 32.08 | 143.46 | 143 | 27 | 32.08 |
| 8 | CA-8 | 20°39'05.97600"N | 84°11'14.60400"E | CA-7-CA-8 | 124.039 | 306.74 | 306 | 44 | 28.48 | 126.74 | 126 | 44 | 28.48 |
| 9 | CA-9 | 20°39'04.14000"N | 84°11'12.55200"E | CA-8-CA-9 | 81.989 | 47.16 | 47 | 9 | 35.92 | 227.16 | 227 | 9 | 35.92 |
| 10 | CA-10 | 20°39'01.87200"N | 84°11'10.06800"E | CA-9-CA-10 | 100.163 | 47.16 | 47 | 9 | 35.92 | 227.16 | 227 | 9 | 35.92 |
| 11 | CA-11 | 20°38'59.42400"N | 84°11'07.36800"E | CA-10-CA-11 | 108.113 | 47.16 | 47 | 9 | 35.92 | 227.16 | 227 | 9 | 35.92 |
| 12 | CA-12 | 20°38'56.58000"N | 84°11'04.20000"E | CA-11-CA-12 | 127.752 | 47.16 | 47 | 9 | 35.92 | 227.16 | 227 | 9 | 35.92 |
| 13 | CA-13 | 20°38'53.55600"N | 84°11'00.88800"E | CA-12-CA-13 | 132.978 | 47.16 | 47 | 9 | 35.92 | 227.16 | 227 | 9 | 35.92 |
| 14 | CA-14 | 20°38'56.43600"N | 84°10'58.44000"E | CA-13-CA-14 | 113.417 | 322.25 | 322 | 14 | 59.11 | 142.25 | 142 | 14 | 59.11 |
| 15 | CA-15 | 20°38'59.35200"N | 84°10'55.95600"E | CA-14-CA-15 | 114.210 | 322.25 | 322 | 14 | 59.11 | 142.25 | 142 | 14 | 59.11 |
| 16 | CA-16 | 20°39'01.98000"N | 84°10'53.72400"E | CA-15-CA-16 | 103.984 | 322.25 | 322 | 14 | 59.11 | 142.25 | 142 | 14 | 59.11 |
| 17 | CA-17 | 20°39'04.32000"N | 84°10'51.74400"E | CA-16-CA-17 | 91.802 | 322.25 | 322 | 14 | 59.11 | 142.25 | 142 | 14 | 59.11 |
| 18 | CA-18 | 20°39'07.59600"N | 84°10'48.93600"E | CA-17-CA-18 | 129.708 | 322.25 | 322 | 14 | 59.11 | 142.25 | 142 | 14 | 59.11 |
| 19 | CA-19 | 20°39'10.33200"N | 84°10'51.67200"E | CA-18-CA-19 | 115.336 | 44.14 | 44 | 8 | 35.15 | 224.14 | 224 | 8 | 35.15 |
| 20 | CA-20 | 20°39'13.35600"N | 84°10'54.69600"E | CA-19-CA-20 | 127.841 | 44.14 | 44 | 8 | 35.15 | 224.14 | 224 | 8 | 35.15 |
| 21 | CA-21 | 20°39'16.59600"N | 84°10'57.90000"E | CA-20-CA-21 | 136.917 | 44.14 | 44 | 8 | 35.15 | 224.14 | 224 | 8 | 35.15 |
| 22 | CA-22 | 20°39'20.41200"N | 84°11'01.64400"E | CA-21-CA-22 | 159.576 | 43.77 | 43 | 45 | 56.73 | 223.77 | 223 | 45 | 56.73 |
| 23 | CA-1 | 20°39'21.49200"N | 84°11'02.68800"E | CA-22-CA-1 | 45.241 | 43.30 | 43 | 17 | 45.96 | 223.30 | 223 | 17 | 45.96 |

**ANNEXURE-II**

# CO-ORDINATES AND BEARINGS OF THE DEMARCATING CONCRETE PILLARS AROUND COMPENSATORY AFFORESTATION AREA

| 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 | 202914.77834 | 2300407.23946 | | 0.000 | | | | | | | | |
| 2 | CA-02 | 202939.11279 | 2300430.71841 | CA-01-CA-02 | 33.815 | 46.0251 | 46 | 1 | 30.222 | 226.025 | 226 | 1 | 30.222 |
| 3 | CA-03 | 202978.62744 | 2300503.71510 | CA-02-CA-03 | 83.006 | 28.4276 | 28 | 25 | 39.434 | 208.428 | 208 | 25 | 39.434 |
| 4 | CA-04 | 203097.56677 | 2300487.37728 | CA-03-CA-04 | 120.056 | 277.821 | 277 | 49 | 16.868 | 97.8214 | 97 | 49 | 16.868 |
| 5 | CA-05 | 203176.79870 | 2300486.20924 | CA-04-CA-05 | 79.241 | 270.845 | 270 | 50 | 40.539 | 90.8446 | 90 | 50 | 40.539 |
| 6 | CA-06 | 203292.50775 | 2300484.50346 | CA-05-CA-06 | 115.722 | 270.845 | 270 | 50 | 40.539 | 90.8446 | 90 | 50 | 40.539 |
| 7 | CA-07 | 203384.38550 | 2300483.14899 | CA-06-CA-07 | 91.888 | 270.845 | 270 | 50 | 40.539 | 90.8446 | 90 | 50 | 40.539 |
| 8 | CA-08 | 203430.19230 | 2300368.45505 | CA-07-CA-08 | 123.503 | 338.229 | 338 | 13 | 44.693 | 158.229 | 158 | 13 | 44.693 |
| 9 | CA-09 | 203477.08520 | 2300251.04162 | CA-08-CA-09 | 126.431 | 338.229 | 338 | 13 | 44.693 | 158.229 | 158 | 13 | 44.693 |
| 10 | CA-10 | 203380.10934 | 2300288.10232 | CA-09-CA-10 | 103.816 | 290.915 | 290 | 54 | 54.236 | 110.915 | 110 | 54 | 54.236 |
| 11 | CA-11 | 203275.81472 | 2300327.95999 | CA-10-CA-11 | 111.651 | 290.915 | 290 | 54 | 54.236 | 110.915 | 110 | 54 | 54.236 |
| 12 | CA-12 | 203223.80502 | 2300350.41721 | CA-11-CA-12 | 56.651 | 293.354 | 293 | 21 | 14.975 | 113.354 | 113 | 21 | 14.975 |
| 13 | CA-13 | 203173.60899 | 2300270.55210 | CA-12-CA-13 | 94.330 | 32.1498 | 32 | 8 | 59.204 | 212.15 | 212 | 8 | 59.204 |
| 14 | CA-14 | 203153.48028 | 2300238.38563 | CA-13-CA-14 | 37.945 | 32.037 | 32 | 2 | 13.087 | 212.037 | 212 | 2 | 13.087 |
| 15 | CA-15 | 203150.56865 | 2300230.35088 | CA-14-CA-15 | 8.546 | 19.9195 | 19 | 55 | 10.265 | 199.92 | 199 | 55 | 10.265 |
| 16 | CA-16 | 203117.44309 | 2300175.10453 | CA-15-CA-16 | 64.416 | 30.9468 | 30 | 56 | 48.439 | 210.947 | 210 | 56 | 48.439 |
| 17 | CA-17 | 203061.40510 | 2300084.66241 | CA-16-CA-17 | 106.396 | 31.7824 | 31 | 46 | 56.555 | 211.782 | 211 | 46 | 56.555 |
| 18 | CA-18 | 203060.29385 | 2300112.12621 | CA-17-CA-18 | 27.486 | 357.683 | 357 | 40 | 58.575 | 177.683 | 177 | 40 | 58.575 |
| 19 | CA-19 | 203065.84709 | 2300178.06311 | CA-18-CA-19 | 66.170 | 4.81412 | 4 | 48 | 50.831 | 184.814 | 184 | 48 | 50.831 |
| 20 | CA-20 | 203045.90049 | 2300179.85968 | CA-19-CA-20 | 20.027 | 275.147 | 275 | 8 | 48.05 | 95.1467 | 95 | 8 | 48.05 |
| 21 | CA-21 | 203045.68882 | 2300196.36972 | CA-20-CA-21 | 16.511 | 359.265 | 359 | 15 | 55.724 | 179.265 | 179 | 15 | 55.724 |
| 22 | CA-22 | 203027.48545 | 2300199.01555 | CA-21-CA-22 | 18.395 | 278.27 | 278 | 16 | 11.862 | 98.27 | 98 | 16 | 11.862 |
| 23 | CA-23 | 203026.53295 | 2300179.54218 | CA-22-CA-23 | 19.497 | 2.80028 | 2 | 48 | 1.005 | 182.8 | 182 | 48 | 1.005 |
| 24 | CA-24 | 202958.06885 | 2300182.08479 | CA-23-CA-24 | 68.511 | 272.127 | 272 | 7 | 36.705 | 92.1269 | 92 | 7 | 36.705 |
| 25 | CA-25 | 202900.37936 | 2300179.43635 | CA-24-CA-25 | 57.750 | 87.3715 | 87 | 22 | 17.328 | 267.371 | 267 | 22 | 17.328 |
| 26 | CA-26 | 202898.26269 | 2300151.39046 | CA-25-CA-26 | 28.126 | 4.31603 | 4 | 18 | 57.699 | 184.316 | 184 | 18 | 57.699 |
| 27 | CA-27 | 202897.17113 | 2300066.31347 | CA-26-CA-27 | 85.084 | 0.73508 | 0 | 44 | 6.293 | 180.735 | 180 | 44 | 6.293 |
| 28 | CA-28 | 202874.55318 | 2300079.55071 | CA-27-CA-28 | 26.207 | 300.338 | 300 | 20 | 18.473 | 120.338 | 120 | 20 | 18.473 |
| 29 | CA-29 | 202858.78678 | 2300103.23620 | CA-28-CA-29 | 28.453 | 326.35 | 326 | 21 | 0.0537 | 146.35 | 146 | 21 | 0.0537 |
| 30 | CA-30 | 202856.45844 | 2300141.54794 | CA-29-CA-30 | 38.382 | 356.522 | 356 | 31 | 19.969 | 176.522 | 176 | 31 | 19.969 |
| 31 | CA-31 | 202857.30511 | 2300153.82463 | CA-30-CA-31 | 12.306 | 3.94519 | 3 | 56 | 42.67 | 183.945 | 183 | 56 | 42.67 |
| 32 | CA-32 | 202869.15847 | 2300175.09717 | CA-31-CA-32 | 24.352 | 29.1272 | 29 | 7 | 37.78 | 209.127 | 209 | 7 | 37.78 |
| 33 | CA-33 | 202865.98346 | 2300198.16889 | CA-32-CA-33 | 23.289 | 352.164 | 352 | 9 | 52.11 | 172.164 | 172 | 9 | 52.11 |
| 34 | CA-34 | 202862.04116 | 2300215.98861 | CA-33-CA-34 | 18.251 | 347.525 | 347 | 31 | 30.897 | 167.525 | 167 | 31 | 30.897 |
| 35 | CA-35 | 202841.64174 | 2300251.78681 | CA-34-CA-35 | 41.203 | 330.324 | 330 | 19 | 24.861 | 150.324 | 150 | 19 | 24.861 |
| 36 | CA-36 | 202820.68670 | 2300268.93184 | CA-35-CA-36 | 27.075 | 309.289 | 309 | 17 | 21.865 | 129.289 | 129 | 17 | 21.865 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | CA-37 | 202791.63539 | 2300289.09313 | CA-36-CA-37 | 35.362 | 304.76 | 304 | 45 | 36.811 | 124.76 | 124 | 45 | 36.811 |
| 38 | CA-38 | 202837.03798 | 2300334.33697 | CA-37-CA-38 | 64.097 | 45.1003 | 45 | 6 | 1.234 | 225.1 | 225 | 6 | 1.234 |
| 39 | CA-39 | 202879.74182 | 2300377.14399 | CA-38-CA-39 | 60.465 | 44.9309 | 44 | 55 | 51.096 | 224.931 | 224 | 55 | 51.096 |
| 40 | CA-01 | 202914.77834 | 2300407.23946 | CA-39-CA-01 | 46.188 | 49.3383 | 49 | 20 | 17.76 | 229.338 | 229 | 20 | 17.76 |
| | | | | | **2210.599** | **Say = 2211.000 M.** | | | | | | | |

**Annexure- III**

## ESTIMATE FOR BARBED WIRE FENCING

01) 02 ply barbed wire (5 Rtm per kg)
7 straight strand X 1000 Mt. =7000 Mt.
2 Diagonal strand = 2 X $\sqrt{(6.5')^2 + (8.2')^2}$ = 2 x 10.50 ft.
= 21.00 ft. x 400 nos. = 8400 ft or =2560 Mt.
=9560 Mt.

Requirement of Barbed wire per Km.
Cost per KM=9560/5=1912 Kg X @ Rs.80/Kg. =
**Rs.1,52,960.00**

02) Construction of RCC pillars of size-
Length-8ft, Bottom Width 6"x6", Top width-4"x4"
Reinforced with 6mm rods with proper curing

$\left\{ 8' \times \frac{6"+4"}{2} \right\} \times \frac{6"+4"}{2}$ =1.34 cft or 0.038 cum

i) Cost of c.c work 1:2:4= 0.038 cum X @**5408**/cum = 205.50
ii) Cost of rod including cutting, bending & binding
0.038x0.9qtl.= 0.0342 qtl. @ Rs.**10,966.12**/qtl. =375.04
Total Rs. 574.31
iii) Contingency (15%) including = 87.08
Curing, stacking, provision of hooks etc.
---
Rs.667.62 or 668/-

Requirement of pillars per KM-
Spacing= 2.5 mt. x 2.5 mt.
Requirement= 1000mt./2.5mt. =400
Strut pillar in every 10th pillar=(400/10)x2 = 80
---
480 Nos.

Cost of pillars per Kilometer = 480 X @ 668/- =
**Rs.3,20,640.00**

03) Fitting 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'= 3.375 cft/pit
for 480 pits, 480x3.375=1620 cft or 45.86 cum X @ Rs.13,244/100cum = Rs. 6073.69

ii) Fixing of pillars with 4cm hbg metals in C.M 1:4:8
pit size- 1.5'x1.5'x1.5' =3.375 cft.
Deduct 1/3rd of butt of pillar i.e. 3.375/3 =(-) 1.125 cft.
Total c.c. work per pillar
---
2.25 cft.
For 480 pillars=480x2.25=1080cft or 30.577 cum. X @ **Rs.3744**/cum. =Rs.1,14,480.29

04) Labour for straightening the barbed wire and fixing & clipping with pillars 70M.D per km @ 308/- =**Rs.21,560.00**

05) Carriage of Barbed wire & pillars to work site

@Rs.1000/tl. and cost of loading & unloading within 5 km distance Approximately 10 tld @ 800/tld =**Rs.18,000.00**

06) Provision of one Iron Gate of size (4'x5') on LS = **Rs. 12,500.00**

Total = Rs.6,46,213.98
Or= Rs.6,46,214.00

Labour Cess 1%= Rs. 6,463.00
Expenditure per 1 km of barbed wire fencing = **Rs.6,52,677.00**
**Or say, Rs. 652.67/- or Rs. 653/-**

07) Expenditure towards maintenance for 3 years (3rd , 6th & 9th year) @ 2% of cost per RKM = 3 x 2% X Rs.6,52,677/- = = Rs.39,160.62
Or Rs. 39,161/-

**Expenditure per 1 km of fencing including maintenance = Rs.6,91,839.00**

So, expenditure per running meter for fencing = Rs. 691.83 Per Mtr. **or say Rs. 692/- per Mtr.**

05/11/20
Divisional Forest Officer
Boudh Forest Division
Divisional Forest Officer
Boudh Division

## ANALYSIS OF RATE

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

| | | | |
|---|---|---|---|
| Male Mulia | 43.00 | Nos.@ 308/-day | Rs.13,244/- |
| Female Mulia | | | |

**Rs.13,244/Cum**

2. C.C/(1:4:8) using 4 cm. size hard granite 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 |
| Massion 2nd class | 0.18 | Nos.@ Rs.398/day | Rs. 71.64 |
| Man Mulia | 1.80 | Nos.@ Rs.308/day | Rs. 544.40 |
| Woman Mulia | 1.40 | Nos.@ Rs. 308/day | Rs. 431.20 |
| Man Mulia | 0.70 | Nos.@ Rs. 308/day | Rs. 215.60 |

**Rs.3743.54/Cum.**
**Or Rs. 3744/-**

3. Cement Concrete (1:2:4) with 12mm 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.443.00 | Rs. 199.35 |
| Cement | 3.23 | Qntl.@ Rs.630.00 | Rs.2034.90 |
| Massion 2nd class | 0.60 | Nos.@ Rs. 398.00/day | Rs. 238.80 |
| Man Mulia | 4.60 | Nos.@ Rs. 308/day | Rs.1416.80 |

**Rs.5407.99/Cum.**
**Or Rs 5408/-**

4. Cutting bending, binding, straightening and tying the grills and placing In position including cost of M.S. of Tor Steel & binding wires etc. Ref-A/R-2006 item No.9 pages 52
Taking output for 1QT.
Cost & carriage of HYDS steel including 5%

| | | | | |
|---|---|---|---|---|
| For wastage & overlapping | QT | 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 | 398.00 | Rs. 175.12 |
| Black smith special | Each | 4.00 | 398.00 | Rs.1592.00 |
| Semi-skilled Mulia | Each | 8.00 | 348.00 | Rs.2784.00 |

**Rs.10,966.12/QT.**
**Or 10966/-**

**DETAILED ESTIMATE FOR LOOSE BOULDER CHECK DAM (LBCD)**
**(Length 5Mtr., Height 1Mtr., Top width 1Mtr., Bottom width 7Mtr., Approne 1Mtr.)**

1. Excavation of foundation of LBCD

   Step-1 = 5Mtr. X (7+1) Mtr. X 003 Mtr. = 12.00cum
   Step-2 = 5Mtr. X 1 Mtr. X 0.5Mtr. = 2.50cum

   Or say 14.50cum @ Rs. 175/cum..... Rs. 2337.50

2. Construction of LBCD by RR Stone (HG)

   Foundation as above = 14.50cum
   Super Structure – ½ x 1Mtr. X (7Mtr. + 1Mtr.) = 4.00cum
   Total = 18.50cum

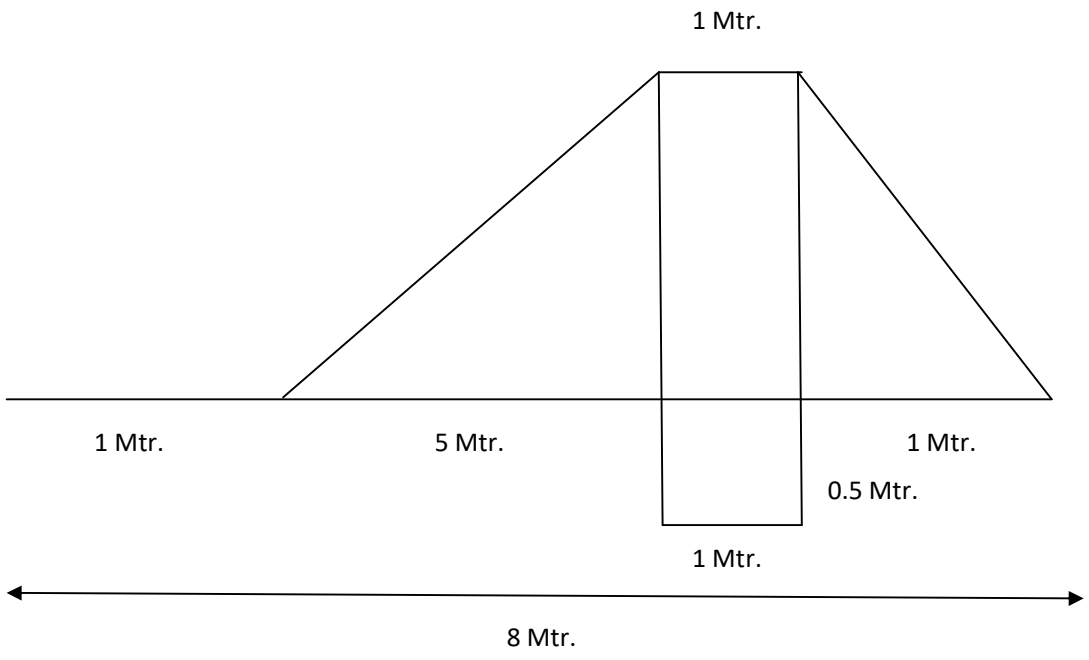
   Or say 18.50cum @ Rs. 1071.68/cum..... Rs. 19826.08

3. Sign board..... Rs. 150.00

4. Labour Cess @ 1%..... Rs. 223.14

**Total Rs. 22536.72**
**Or Rs. 22537.00**
**(Rupees twenty two thousand five hundred thirty seven) only**

**PLAN**



# Analysis

**Data for 100 cum**

1. Earth work in all kinds of soil for excavation with initial lead & lift etc. complete.

| | |
|---|---|
| Mulia 47.35 nos. @ Rs. 308/each | Rs. 14583.80 |
| Add for 20% excavation | Rs. 2916.76/cum |

**Total:- Rs. 17500.56/100cum**
**Or Say Rs. 175.00/cum**

**Date for 1 cum**

2. R.R stone dry packing in aprons & revetment of size 30cm above etc. completed.

| | |
|---|---|
| Collection of Stone 1.00cum by engaging labour 1MD @ Rs. 308/cum | Rs. 308.00 |
| Mason 2nd Class 0.52nos. @ Rs. 398.00/each | Rs. 206.96 |
| Semi skilled 0.52nos. @ Rs. 348.00/each | Rs. 180.96 |
| Male Mulia 1.22nos. @ Rs. 308.00/each | Rs. 275.76 |
| **Total** | **Rs. 837.21/cum** |

05/11/20
Divisional Forest Officer
Boudh Forest Division
Divisional Forest Officer
Boudh Division