

**PHASED RECLAMATION PLAN
FOR LASERDA-PACHERI MAGANESE & IRON MINES
(OVER 122.083 Ha.) WITHIN THE GRANTED LoI FOR
MINING LEASE OVER 131.800 HA**



**SUBMITTED BY
M/s THRIVENI EARTHMOVERS PVT. LTD
AT- UNCHABALI, Po.-BAMEBARI,
DIST.-KEONJHAR, ODISHA, PIN -758086**

SCHEME FOR RECLAMATION AND AFFORESTATION OF LASERDA-PACHERI MANGANSE & IRON MINES OVER 122.083 Ha. WITHIN THE GRANTED LoI FOR MINING LEASE AREA OVER 131.800 HA OF M/S THRIVENI EARTHMOVERS PVT. LTD IN VILLAGE DHANANJAYPUR, KANARDA & LASERDA UNDER BARBIL TAHASIL OF KEONJHAR DISTRICT, ODISHA.

Introduction

Government of Odisha issued the Letter of Intent (LoI) vide letter No – IV (MISC) SM-06/2017848/SM, Bhubaneswar dated 27.01.2017 under Rule 18(1) of Mineral Auction Rules 2015 for grant of Composite License (CL) in favor of M/s Thriveni Earthmovers Pvt. Ltd (TEMPL). After complying with the stipulated conditions of LoI, Govt. of Odisha declared M/s Thriveni Earth Movers Pvt. Ltd as the Successful Bidder and Granted the Composite License over 256.304 ha for Manganese vide No.IV (B)SM-100/2007-433/SM, dated 19.01.2019 and the prospecting license deed was executed on 24.01.2019 for 2 years. During the prospecting new minerals (i.e. iron ore) was discovered and it was intimated to Govt. under Rule 11(2) of Minerals (Other than Atomic and Hydro Carbons energy Minerals) Concession Rules, 2016. On due completion of exploration, Mining Lease application over 131.889 ha was submitted and Government of Odisha has awarded the Letter of Intent for grant of mining lease vide No. 7731-IV(B)SM-100/2017/SM dated 21.09.2021 in favour of M/s Thriveni Earthmovers Pvt. Ltd. for Manganese & Iron ore over an area of 131.889 ha situated in Dhanrjayapur-40, Kanrda -38 & Laserda village under Barbil Tehsil of Keonjhar District, Odisha, copy of the same is enclosed as **Annexure – I**. Subsequently after conduct of DGPS survey by ORSAC, the area now comes to 131.800 ha which has been intimated by Director of Mines vide no. MXIII (b) 80/2015/8031/DM/dated 22.10.2021, Copy of the same is enclosed as **Annexure – I(A)**.

In the Letter of Intent Govt. of Odisha has advised to M/s Thriveni Earthmovers Pvt. Ltd to obtain all consents, approvals, permits, no-objections and like as may be required under applicable laws for commencement of mining operation.

Therefore, this proposal is being submitted for diversion of forest land over – 94.351 ha (Revenue Forest – 53.467 ha and 40.884 ha of non-forest land recorded as forest as on 25.10.1980) under Sec. 2(iii) of F. C. Act, 1980 including 4.261 ha forest land abide for Safety Zone along the Lease boundary, public road and River. Out of the above applied area under Section 2(iii) of FC Act 1980, an area over 90.493 ha excluding the safety zone along the Mining Lease boundary is also being simultaneously applied under Section 2(ii) of FC Act, 1980 for diversion, under the same proposal for a period of 50 years as would be coterminous with the lease period under Section 8(A) 2 of MMDR Amendment Act, 2015.

The said area is fresh allotted area; hence the application of Forest Diversion Proposal is being applied in **Form A** under section 2 (ii) and section 2 (iii) of Forest Conservation Act, 1980 as per the guideline dated 01.04.2014.

The lease area has been earmarked in Toposheet No. F45H8 (73 F/8) shown in **Plate No. –I**. The allotted ML area is bounded by latitude 22°04'11.44231" to 22°03'25.92856"N and longitude 85°19'15.99748" to 85°17'53.81761"E. The allotted boundary DGPS co-ordinates are shown in authenticated Lease Map in **Plate No. – II(A)**. The area is near to Bolani Iron ore mines of SAIL, which is situated on the Northern side of the area.

Land Use Pattern

The total forest lands required for this project is 94.351 ha. including safety zone in forest land over 4.261 ha. The item wise break up of total land including forest and non-forest is furnished below:-

ITEM WISE BREAK UP OF PROPOSED LAND USE

**Item wise Proposed Break up of Land Use Pattern in Forest and Non-Forest land of
Total Granted LoI for Mining Lease Hold Area (Table – 1)**

Sl. No.	Particulars	Category wise Forest Land in ha		Total Forest in ha	Non-Forest Land in ha	Grant Total in ha
		Revenue Forest	Sabik Forest			
1	Mining along with Mines Road	34.413	29.955	64.368	12.580	76.948
2	Waste Dump with environmental Safeguard like Retaining wall, Garland Drain & Settling Pond	8.05	3.562	11.612	7.06	18.672
3	Fixed Screening & Crushing Plant with premises	1.066	0	1.066	1.204	2.27
4	Sorting & Sizing of Mn ore	6.189	2.585	8.774	10.968	19.742
5	Mineral Stacking Yard	1.021	0.663	1.684	0.076	1.76
6	Office, Site service & Admin. Building, Camp, Work shop	0	0.612	0.612	1.339	1.951
7	Parking area	0.649	0.321	0.97	0.971	1.941
8	Internal Road for Transporting	0.187	0.362	0.549	1.366	1.915
9	Road for In & Out in SZ along the ML boundary	0.004	0.035	0.039	0.007	0.046
10	Road for In & Out in SZ along the PWD road	0.044	0.118	0.162	0	0.162
11	Road for In & Out in SZ along the River	0.001	0.253	0.254	0.025	0.279
X	Sub Total	51.624	38.466	90.090	35.596	125.686
12	Safety Zone along the Lease boundary and village Road	1.843	2.015	3.858	1.69	5.548
13	Safety Zone along the PWD Road	0	0.403	0.403	0.163	0.566
14	Safety Zone along the River	0	0	0	0	0
Y	Sub Total	1.843	2.418	4.261	1.853	6.114
	Grant Total (X + Y)	53.467	40.884	94.351	37.449	131.800

Proposed Reclamation & Afforestation

Total 122.083 ha of forest and non-forest land will be disturbed the original shape and vegetation for mining and ancillaries activities during the mining operation from the allotted mining lease area. The Safety zone along the Lease Boundary and PWD road will be remained unchanged. The proposed Reclamation and Afforestation will be carried out in phase manner over 120.083 ha in forest land disturbed area for mining and other ancillary activities. The gap plantation in the safety zone area is being carried out since the starting year of the mine operation, which will be maintained and gap plantation program will be carried out in the 7.5m. safety zone area along the mine boundary and 50m. safety zone of PWD road over 6.114 ha. of forest and non-forest land. The reclamation and afforestation in the disturbed area will be start from the 3rd year of the mining operation. Out of 120.083 ha. 18.672 ha will be proposed to be afforestation in the stabilized waste dump, 75.998 ha. will be proposed to be reclaimed and afforestation in the mined out area using surface layer of benches top cover of benches by 6" top soil and 27.413 ha will be proposed for only plantation in the ancillaries area for stacking, infrastructure etc. The details reclamation and afforestation programme is shown in **Table No.2**.

Choice of species

The choice of species for a specific site always depends on the existing vegetation, if any. Accordingly the following species will suit to the site.

Sl.No	Local Name	Botanical Name
01	Siris	Albizzia lebbek
02	Kurum	Adina cordifolia
03	Jack-fruit	Artocarpus heterophyllus
04	Mahanim	Ailanthus excelsa
05	Babul	Acacia nilotica
06	Sunari	Cassia fistula

07	Sissoo	<i>Dalbergia latifolia</i>
08	Gamahr	<i>Gmelina arborea</i>
09	Mango	<i>Mangifera indica</i>
10	Karanj	<i>Pongamia pinnata</i>
11	Bija	<i>Pterocarpus marsupium</i>
12	Asan	<i>Terminalia alata</i>
13	Tamarind	<i>Tamarindus indicus</i>
14	Jammu	<i>Syzygium cumini</i>
15	Kusum	<i>Schleichera oleosa</i>

Nursery Practice

During January-February decentralized nursery will be made at the planting site considering the availability of water and less of biotic interference. The nursery site will be properly fenced with a gate for approach. Polythene bags of size 5" x 9" x 100 gauges filled with cow-dung manure, sand and soil with a proportion of 1:1:3 will be set in half-sunken beds in 1000 Nos. per bed. In between each bed, adequate space should be left for a man to move for after-care of the seedlings like watering, weeding, manuring, application of insecticides etc. Treated seeds will be dibbled in pre-soaked polythene bags during March. Daily watering shall be continued along with weeding till unset of monsoon i.e. by 3rd week of June. Over-head platform may be provided during daytime and removed during night time. The objective should be that, the seedling should grow to the height of at least 60cm by 15 July. However, from fag end of May till the seedlings are transported to field for planting, shifting and grading should be practiced to acclimatize the seedlings to grow in the natural condition.

Preparation of site and planting.

Pits of 30cm x 30cm x 30cm should be dug at 2.5mt x 2.5mt spacing over the area intended for planting. On the unset of monsoon, the seedlings be transported to site and arranged near each pit according to planting design. Applying 100 Gms of chemical manure preferably grow – more, seedlings

with ball of earth should be planted in the pit and compacted from all sides. The polythene bags removed from the ball of earth should be collected and dumped in nearby pit.

Post-planting operation

Circular weeding at a radius of 30cm around each plant should be done during August and October. Fire tracing should be done in March. Digging of half-moon trench around each plant and checking soil-erosion with gully plugging operation should be carried out concurrently.

2nd Year operation after plantation

Casualties, if any, should be replaced with taller seedlings to match with the growth of side by seedlings. Circular weeding and application of manure should be done in august and October. Fire tracing should be done in March.

3rd Year operation after plantation

It is expected that, by this time the plants must have grown to be height of 120 cm to 150 cm which is beyond the height of damage. So, prevention from any biotic interference may be necessary.

COST ESTIMATION FOR AFFORESTATION OF RECLAIMED AREA

The detail estimation of the above item of work per hectare in the year wise statement is furnished below

1.	Name of the Plantation.	Block Plantation.
2.	No. of seedlings to be planted.	1600 Nos. per hectare
3.	Spacing to be adopted.	2.5m x 2.5m
4.	Size of pits.	30cm x 30cm x 30cm
5.	Wage rate.	Rs. 350.00 per man days.
6.	Species to be planted.	<i>Bamboo, Mahul, Teak, karanj, Harida, Bahada, Amla etc. and other miscellaneous species</i>

Sl.No	Type of operation	Amount(Rs)
1	Nursery-1600 plant + 10% 160=1760 @10/-	17,600.00
2	Survey, demarcation & pillar posting- 8 Labours	2,800.00
3	Site preparation-6 Labours	2,100.00
4	Alignment and staking-4 Labours	1,400.00
5	Pitting 30cm cube pits-1600 pits @ 40 Labours	14,000.00
6	Contingencies @20% of total cost of Sl. No. 01 to 05	7,580.00
	Total of 0th year	45,480.00
	1st year	
7	Carriage of seedlings 1600 Nos 10 Labours	3,500.00
8	Planting with application of manure and insecticide 11 Labours	3,850.00
9	Cost of manure 100 gms per plant=160 Kg @Rs.10.00	1,600.00
10	First weeding 10 Labours	3,500.00
11	Manuring 10 Labours	3,500.00
12	Second Weeding Labours	2,000.00
13	Soil working Labours	2,000.00
14	Fire tracing & Inspection path-10 Labours	3,500.00
15	Soil conservation measures-10 Labours	3,500.00
16	Watch & ward	3,000.00
17	Contingencies-20%	5,990.00
	Total 1st Year	35,940.00
	2nd Year	
18	Casualty replacement including seedlings cost – 20 Labours	7,000.00
19	Application of fertilizer-16 Labours	5,600.00
20	Cost of fertilizer-100gms per plant 160 kg @ Rs.10.00	1,600.00
21	Weeding-10 Labours	3,500.00
22	Soil working-10 Labours (50cms. Radius around plant)	3,500.00
23	Fire tracing-10 Labours	3,500.00
24	Contingencies -20%	4,240.00
25	Watch & ward	3,000.00
	Total 2nd year	32,640.00

	3rd Year	
26	Prunning-10 Labours	3500.00
27	Contingencies	700.00
28	Watch & ward	800.00
	Total 3rd Year	5,000.00

**ABSTRACT OF EXPENDITURE OF COST OF AFFORESTATION IN
PHASED RECLAMATION PLAN**

Sl. No.	Year of Operation	Cost in Rs.
1	0 th year	45,480.00
2	1 st year	35,940.00
3	2 nd year	32,640.00
4	3 rd year	5,000.00
	Total	1,19,060/- Say Rs. 1,19,500/-

The total expenditure for the proposed reclamation and afforested area of 122.083 ha. @ 1, 19,500/- per ha. the cost will be Rs. **1,45,88,919.00/-**.

G. Venkateswaram



YEAR WISE RECLAMATION & PLANTATION PROGRAMME (Table-2)

Phase	Year	Safety Zone area Plantation	Ancillaries area only plantation (ha)	Mined out area to be reclamation and afforestation (ha)	Stabilized Dump Plantation in (ha)	Total Area in Ha.	No of seedlings to be planted	Remarks
I	1 st to 10 th year of mine operation	6.114	Nil	8.572	5.905	20.591	18523	Gap / Dump Plantation @ 400 seedlings per ha.
II	15 th to 20 th year of mine operation	Nil	Nil	13.451	Nil	13.451	21522	Afforestation in Mine out/ Ancillaries Area @ 1600 seedling per ha
III	20 th to 25 th year of mine operation	Nil	Nil	23.055	Nil	23.055	36888	
IV	25 th to 30 th year of mine operation	Nil	5.718	17.543	Nil	23.261	37218	
V	30 th to 35 th year of mine operation	Nil	Nil	13.377	Nil	13.377	214032	
VI	35 th to 40 th year of mine operation	Nil	21.695	Nil	12.767	34.462	39819	
	Total	6.114	27.413	75.998	18.672	128.197	368001	

Note : The above Phase wise Reclamation and Rehabilitation proposal is tentative as per the present exploration. It may change as per the detailed exploration carried out during the Mining operation. The Reclamation and Rehabilitation will be carried out as per the approved Progressive Mine closure/ final Mine Closure Plan Approved by Indian Bureau of Mines.

G. Venkateshwar

