SCHEME FOR COMPENSATORY AFFORESTATION OVER 248.626 HA. OF DEGRADED FOREST LAND IDENTIFIED IN LAXMIPOSI RF UNDER CHAMPUA FOREST RANGE OF KEONJHAR FOREST DIVISION AGAINST BOLANI ORE MINES (6.90 SQ. MILES)

OF

M/s STEEL AUTHORITY OF INDIA LTD

ELEMENTS OF THE SCHEME FOR COMPENSATORY AFFORESTATION

CHAPTER- I

BRIEF NOTE ON THE PROPOSED FOREST DIVERSION PROPOSAL

Bolani Ores Mines, under Raw Materials Division of M/s Steel Authority of India Limited (SAIL), is situated in villages Balagoda, Bolani and Limtur under Barbil, Tahasil of Keonjhar district under the jurisdiction of Barbil Forest Range of Keonjhar Forest Division . The original Mining Lease, granted over 1786.74 ha (6.90 Sq. Miles) for Manganese Ore in favour of M/s Bolani Ores Limited, has been executed on dated 14.11.1962 for a period of 20 years with validity from 14.11.1962 to 13.11.1982. The said mining lease, subsequently, has been transferred in favour of M/s Steel Authority of India Limited in the year 1978. Nonetheless, supplementary Lease deed has been executed for inclusion of Iron Ore in the said Mining Lease. 1st RML application has been submitted, on dated 12.11.1981, one year prior to the expiry of the validity of the original Mining Lease and the 1st RML has been granted over 1786.74 ha vide Proceedings No. 6040/SM dated 29.05.1984 of Steel & Mines Department, Govt. of Odisha for the period 14.11.1982 to 13.11.2002. 2nd RML application has been submitted on reduced area over 1586.36 ha, on dated 26.03.2002, within one year of the expiry of the validity of the 1st RML and the 2nd RML is not yet granted and executed.

Bolani Ores Mines (6.90 Sq. Miles) of M/s SAIL is located within the latitude 2205'12"N to 2207'42"N and longitude 850 19'04" E to 850 23'08"E of Survey of India Topo sheet No. 73 F/8. The mining lease, granted during 1st RML over 1786.74 ha, involves 706.52 ha forest land (Karo RF - 339.21 ha, Uliburu RF- 174.44 ha and Revenue Forest- 192.87 ha) and 1080.220 ha Non-Forest Land. The 2nd RML application, submitted on reduced area over 1586.36 ha, involves 506.140 ha forest land (Karo RF – 339.210 ha and Revenue Forest- 166.930 ha) and 1080.220 ha Non-Forest Land.

Pursuant to letter No. 8-230/FCE dated 07.10.2014 of Govt. of India, MoEF&CC, ERO, Bhubaneswar read with letter No. 22350/F&E dated 05.12.2014 of F&E Department, Govt. of Odisha, DGPS Survey has been carried out in respect of Bolani Ore Mines (6.90 Sq. Miles) of M/s SAIL over mining lease area of 1586.36 ha, submitted for grant during 2nd RML, in the year 2015. The scheduled area of the Revenue Forest plots, involved in the mining lease, has been arrived, following DGPS Survey of the Mining Lease, at 146.009 ha as per RoR against the scheduled area over 166.93 ha mentioned in the 2nd RML application submitted for grant under MMDR Act, 1957. The major discrepancy in Revenue Forest is due to presence of some plots within the lease but not reflected in the land schedule over 71.707 ha and also due to absence of some plots within the lease but included in the land schedule over 95.748 ha. In the aforesaid scenario, the effective area of Revenue Forest, involved in the mining lease and as per RoR of the said plots, is 146.009 ha. The extent of Reserved Forest has been arrived at 340.006 ha as against 339.21 ha mentioned in the 2nd RML application submitted for grant under MMDR Act, 1957.

In the above context, it is nevertheless, mentioned that the extent of Non-Forest land, involved in the mining lease over 1080.22 ha as per RoR schedule, submitted for grant during 2nd RML, has been arrived at 701.122 ha as per schedule in village Bolani, Balagoda & Limtur following surrender of 399.223 ha in village Matkambeda, Kolha-Barapada, Sundara, Santabhal and Serenda. In addition, an area over 238.093 ha Non-Forest land, out of total non-forest land of 701.122 ha as aforementioned and

involved in the mining lease, has been certified by the Tahasildar, Barbil to be forest land as on 25.10.1980 as per Govt. record pursuant to the guideline F No. 8-78/1996-FC(pt.) dt.10.03.2015 read with F No. 8-78/1996-FC(pt.) dt.09.03.2016 of MoEF&CC, Govt. of India.

The Mining Lease in 2nd RML, submitted over reduced area of 1586.36 ha for grant under MMDR Act, 1957, thus in effect, involves 339.210 ha Karo RF, 146.009 ha Revenue Forest, 238.093 ha Non-forest land recorded as forest as on 25.10.1980 and 463.029 ha Non-forest land as per schedule of RoR. In the light of above fact, the effective strength of mining lease, stands at 1186.341 ha. The DGPS Surveyed area of Reserved Forest is 340.006 ha and that of Revenue Forest and Non-forest land recorded as forest as on 25.10.1980 is 144.038 ha and 240.973 ha respectively.

Nevertheless, it is mentioned that the total forest land, as aforementioned, involved in the Mining Lease over 723.312 ha, stands diverted under Sec 2(iii) in pursuance of the general approval accorded under FC Act, 1980 dated 01.04.2015 on realization of NPV over the entire forest land.

Forest Diversion Proposal has been submitted over 124.313 ha Non-Forest Land recorded as Forest as on 25.10.1980, excluding the forest land located in the safety zone of the applied plots over 14.748 ha, for approval under Section 2(ii) of Forest (Conservation) Act, 1980.

The present scheme aims at preparation of a site-specific Compensatory Afforestation scheme over 248.626 ha of degraded forest land, twice the extent of forest land applied for diversion i.e. 124.313 ha, identified in Laxmiposi RF under Champua Forest Range of Keonjhar Division at the prevailing wage rate of Rs. 200/ MD with maintenance period of ten years.

CHAPTER- II

DETAILS OF LAND IDENTIFIED FOR COMPENSATORY AFFORESTATION

IDENTIFICATION OF DEGRADED FOREST LAND

II(1)- Details of identified Forest land-

The identified Forest land for Compensatory Afforestation is situated in Laxmiposi Reserved Forest in Coupe No. BLB-IV & BLB-V under Balibandh Improvement Series of Champua Range in Keonjhar Forest Division. This Forest Block is allotted to improvement working circle of the present Working Plan.

II(2)- Character of existing vegetation of the identified site for Compensatory Afforestation-

The prevailing forest growth has been categorized under forest type- 5B/C1c Dry Peninsular Sal Forest and 5/DS1 Moist Mixed Scrub Deciduous Forest. The vegetation consists of Sal and its associates. The common associates of sal in this forest are *Terminalia alata, Anogeissus latifolia, Pterocarpus marsupium, Diospyrus melanoxylon, Terminalia chebula, Terminalia belerica, Lagerstroemia parviflora, Buchanania lanzan, Lannea coromondelica, Dalbergia latifolia.* The common plants are *Gardenia gumifera, Wendlandia tinctoria, Emblica officinalis, Cassia fistula, Morinda tinctoria, Nyctanthus arborstristis, Holarhoena antidysenterica, Antidesma spp., Randia spp., Symplocos racemosa and Cleistanthus collinus.*

II(3)- Working Plan prescription for the identified site for Compensatory Afforestation-

The prescribed objectives of management for the identified forest block is depicted hereunder-

- Regeneration of degraded forest block by providing silvicultural input.
- Ensuring Soil & Moisture Conservation Measures to enrich the micro-edaphic conditions.
- Tending the existing crop for maximum growth and improving the density condition and composition of the crop.

II(4)- Suitability of the identified site for Compensatory Afforestation-

The identified site in Coupe No. BLB-IV & BLB-V of Laxmiposi RF is a degraded patch with existing vegetation of Sal and Sal associates. Gaps are sporadically spread over the forest block. The topography of the area is mainly undulating plain having good depth of soil conducive for plantation under ANR with Gap model @200 seedling per ha. The average maximum temperature is 40^0 to 45^0C and minimum 5^0 to 10^0 C and annual rainfall varies from 1100 mm to 1800 mm. The maximum rainfall is received during the rainy season from July to September. The identified site is situated adjacent to village Laxmiposi. The site has been demarcated with 4 feet RCC pillars with erection of durable signboard depicting Scheme, Year, User Agency, Area etc. on it. Therefore, the CA scheme is envisaged to be executed with involvement of Laxmiposi VSS.

CHAPTER-III

DELINEATION OF PROPOSED AREA ON SUITABLE MAP

III(1)- GPS COORDINATES AND GPS MAP OF THE COMPENSATORY AFFORESTATION SITE

The area has been demarcated through GPS survey and GPS survey data showing latitude and longitude of each point and their chainage with bearing is also enclosed in the map prepared thereon (Maps enclosed).

CHAPTER- IV

AGENCY RESPONSIBLE FOR COMPENSATORY AFFORESTATION

IV(1)- AGENCY RESPONSIBLE FOR PLACEMENT OF FUNDS

The user agency shall provide funds for raising Compensatory Afforestation as per approved scheme.

IV(2)- AGENCY RESPONSIBLE FOR EXECUTION OF COMPENSATORY AFFORESTATION

The Territorial Wing of the Forest Department i.e. Divisional Forest Officer, Keonjhar Division will be assigned with the task for execution of the Compensatory Afforestation.

CHAPTER- V

DETAILS OF WORK SCHEDULE PROPOSED FOR COMPENSATORY AFFORESTATION

A. PLANTING PLAN

Planting Plan reflects the species specific treatment of the identified site. Choice of species is based on the geo-morphology of the site, soil-texture, structure, fertility and depth, proneness of the site to water logging etc. Specific treatment of the site in terms of soil and moisture conservation intervention will be depicted in the treatment map. A treatment map will invariably be prepared for Species to be planted and treatments to be applied to the different patches shown in the treatment map and planting plan. This plan will be followed when actual planting is carried out.

Species to be planted:-

1. *Sizyzium cumini* (Jamu)
2. *Adina cardifolia* (Kuruma)
3. *Anogeissus latifolia* (Dhaura)
4. *Accacia catechu* (Khair)
5. *Dalbergia sissoo* (Sissoo)
6. *Azadirrachta indica* (Neem)
7. *Gmelina arborea* (Gambar)
8. *Terminalia belerica* (Bahada)
9. *Terminalia chebula* (Harida)
10. *Pongamia pinnata* (Karanja)
11. *Emblica officinalis* (Ainla)

B.PRE-PLANTING OPERATION

B(I)-RAISING OF PLANTATION STOCK- NURSERY-

Nursery will be raised @220 seedlings per ha. including seedlings for 10% causality replacement.

B(II)- SURVEY, DEMARCATION & PILLAR POSTING, GPS READING WITH MAPPING-

The planting area has been surveyed and demarcated with four feet height RCC pillars at inter visible distance (as per the direction of the Forest Range officer, Champua Range) with GPS coordinates, forward and backward bearing, pillar No. and distance between pillars inscribed in it. A GPS map in the scale of 1:10000 has been prepared along with GPS co-ordinates, forward & backward bearing, pillar to pillar distance and pillar numbers reflected in the map. A sign board has been erected at a conspicuous location with name of the site, scheme, area etc. depicted on it.

B(III)- SITE PREPARATION AND SILVICULTURAL OPERATION INCLUDING CLEARANCE OF WEED, CLIMBER CUTTING, HIGH STUMP CUTTING, SINGLING OF SHOOTS-

The clearing of the site involving removal of invasive weeds, bushes, climbers, high stumps and singling of shoots will be taken up preferably by the end of February and latest by the end of March. Pits of the dimension 30 x 30 x 30 cm. will be dug @200 per ha in the available gaps preferably 2 months before or at least a month before planting of seedlings.

C. PLANTING OPERATION

Planting of seedlings will be taken up in the month of July. The polythene covering of the balls of earth will be carefully removed before planting. Care will be taken to see that the ball of earth is not broken while doing so. The seedling with the ball of earth will then be placed firmly in the pit and buried at such a depth that the root collar is well below the surface of the soil. The soil around the plant will be well compacted with the heal as a final step so that there is a proper bond between the ball and the surrounding soil. The earth close to the collar will be slightly elevated so that rain water does not accumulate very close to the plant.

D. POST PLANTING OPERATION

D(1)-CASUALTY REPLACEMENT

The entire area will be gone over in the same order as plantation was carried out and casualties, if any, will be replaced as soon as the main plantation operation is over.

D(2)-WEEDING AND SOIL WORKING

Regular and efficient weeding will start immediately after sprouting of the stumps is complete or after the seedlings have started throwing up new buds.

D(3)-MANURING AND INSECTICIDE APPLICATION

On degraded sites urban compost or farmyard manure, wherever available, will be added to the soil while refilling the pits. As regards artificial fertilizers, the minerals required and dosage @ 50 grammes of patent mixtures like 'Gromor' or N.P.K. (2:2:1) will be applied in two split doses one in August and the other in September.

D(4)-SOIL MOISTURE CONSERVATION MEASURES

Special Soil Moisture Conservation Measures will be taken up through staggered trenches of dimension 2.5 x 0.5 x 0.5 mtr to the tune of 100 Nos. per ha and percolation pits @400 per ha and drainage line treatment through construction of LBCD i.e. 2 mtr span- 50/ ha and 3 mtr span- 25/ ha over the identified site for Compensatory Afforestation.

D(5)-PROTECTION AGAINST FIRE AND GRAZING

Fire line tracing will be ensured to protect the plantation from fire and watch & ward will be provided as per the approved norm for protecting the plantation from grazing with involvement of Laxmiposi VSS.

CHAPTER- VI

COST STRUCTURE OF PLANTATION, PROVISION OF FUNDS AND UTILIZATION

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

0th year (Advance work) Pre-planting operation.

Sl. No.	Item of work	Preferable period of execution	Person days	Labour (₹)	Material (₹)	Total
1	Survey, Demarcation & pillar posting, GPS Reading with mapping	Nov-Dec	2	400	0	400
2	Site preparation.	Nov-Dec	2	400	0	400
3	Silvicultural Operation including clearance of weed, climber cutting, high stump cutting, singling of shoots etc	Jan-Feb	5	1000	0	1000
4	Nursery cost (6 months old seedling) part @₹9.45/- seedling (₹6.67 in 0th year + ₹2.78 in 1st year) for 220 seedlings (200+20)	Jan-March	5.5	1100	367	1467
5	Contingency and Unforeseen Expenditures		0	0	133	133
	Sub-Total		14.5	2900	500	3400
	1ST YEAR OPERATION					
1	Nursery cost (6 months old seedling) balance @₹2.78 for 220 seedling	Apr-Jul	2.5	500	112	612
2	Pitting 30 cm cube size	Feb/Mar	6	1200	0	1200
3	Carriage and planting including casualty replacement	Jul/Aug	5	1000	0	1000
4	Complete weeding, Soil working, Manuring	Aug/Sep	6	1200	0	1200
5	Cost of Vermi compost @200gms/ plant @₹20/- per Kg= ₹800.00 and Granular Insecticide 5 gms/ plant @₹80/- per Kg= ₹80.00	Aug/Sep	0	0	880	880
6	Cost of Chemical fertilizer (a) Urea 70 gms/ plant@₹6/- per Kg= ₹84.00 (b)NPK 50 gms/ plant @₹24/- per kg= ₹240.00 as basal dose.		0	0	324	324
7	Silvicultural Operation involving clearance of weeds, cutting of climbers, singling of shoots etc.	Sep/ Oct	15	3000	0	3000
8	Soil Conservation Measures	Sep/ Oct	20	4000	0	4000

	(Staggered trenches of dimension 2m X 0.5m X 0.5m @60 nos per ha) or its equivalent					
9	Fireline Tracing and Inspection path	Feb/ Mar	3	600	0	600
10	Watch & ward	Aug-Mar	7	1400	0	1400
11	Contingency and Unforeseen Expenditures		0	0	304	304
	Sub-Total		64.5	12900	1620	14520
	2ND YEAR OPERATION					
1	Casualty Replacement including cost of seedling, carriage and planting	Jul/ Aug	1	200	189	389
2	Complete weeding and cultural operations	Sep/ Oct	2	400	0	400
3	Soil working and manuring	Sep/ Oct	2	400	0	400
4	Cost of Fertilizer and insecticide (a) Vermi compost @200gms/ plant @₹20/- per Kg= ₹800.00 (b) Granular Insecticides 5 gms/ plant for 20 plants 100 gms @₹80/- per Kg= ₹8.00	Sep/ Oct	0	0	808	808
5	Soil Conservation Measures (Renovation of staggered trenches etc.)	Sep/ Oct	8	1600	0	1600
6	Fireline Tracing and Inspection path	Feb/ Mar	1	200	0	200
7	Watch & ward (whole year)	Apr/ Mar	7	1400	0	1400
8	Contingency and Unforeseen Expenditures		0	0	181	181
	Sub-Total		21	4200	1178	5378
	3RD YEAR OPERATION					
1	Complete weeding and cultural operations	Aug/ Sep	1	200	0	200
2	Soil working	Aug/ Sep	1	200	0	200
3	Fireline Tracing and Inspection path	Feb/ Mar	1	200	0	200
4	Watch & ward (whole year)	Apr-Mar	7	1400	0	1400
5	Contingency and Unforeseen Expenditures		0	0	200	200
	Sub-Total		10	2000	200	2200
	4TH YEAR OPERATION					
1	Fireline Tracing and Inspection path	Feb/ Mar	1	200	0	200
2	Watch & ward and cultural operations	Apr-Mar	2	400	0	400
	Sub-Total		3	600	0	600
	5TH YEAR OPERATION					
1	Fireline Tracing and Inspection path	Feb/ Mar	1	200	0	200

2	Watch & ward and cultural operations	Apr-Mar	2	400	0	400
	Sub-Total		3	600	0	600
		6TH YEAR OPERATION				
1	Fireline Tracing and Inspection path	Feb/ Mar	1	200	0	200
2	Watch & ward and cultural operations	Apr-Mar	2	400	0	400
	Sub-Total		3	600	0	600
		7TH YEAR OPERATION				
1	Fireline Tracing and Inspection path	Feb/ Mar	1	200	0	200
2	Watch & ward and cultural operations	Apr-Mar	2	400	0	400
	Sub-Total		3	600	0	600
		8TH YEAR OPERATION				
1	Fireline Tracing and Inspection path	Feb/ Mar	1	200	0	200
2	Watch & ward and cultural operations	Apr-Mar	2	400	0	400
	Sub-Total		3	600	0	600
		9TH YEAR OPERATION				
1	Fireline Tracing and Inspection path	Feb/ Mar	1	200	0	200
2	Watch & ward and cultural operations	Apr-Mar	2	400	0	400
	Sub-Total		3	600	0	600
		10TH YEAR OPERATION				
1	Fireline Tracing and Inspection path	Feb/ Mar	1	200	0	200
2	Watch & ward and cultural operations	Apr-Mar	2	400	0	400
	Sub-Total		3	600	0	600
	Grand Total		131	26200	3498	29698

ABSTRACT

Year	Person days	Labour	Material	Total
0th Year	14.5	2900	500	3400
1st Year	64.5	12900	1620	14520
2nd Year	21	4200	1178	5378
3rd Year	10	2000	200	2200
4th Year	3	600	0	600
5th Year	3	600	0	600
6th Year	3	600	0	600
7th Year	3	600	0	600
8th Year	3	600	0	600
9th Year	3	600	0	600
10th Year	3	600	0	600
Total	131	26200	3498	29698
Total Cost Norm per ha.				29698
Total Cost of plantation (248.626 ha.)				7383695

ADDITIONAL COST PROPOSED

1	SMC measures- LBCD structure of 2mtr span @ Rs. 5389/- for 50 structures.	269450.00
2	SMC measures- LBCD structure of 3 mtr span @ Rs. 11248/- for 25 structures.	281200.00
3	Staggered trenches @Rs. 15267/- for 100 Nos per ha. over 248.626 ha.	3795773.14
4	Percolation Pits @Rs. 25600/- for 400 Nos. per ha over 248.626 ha	6364825.60
5	Additional incentive (3%) for VSS/Fr./FG proposed for more than 80% survival and very good growth during 4th year of maintenance as per recommendation of DFO and RCCF. @Rs. 891/- for 248.626 ha.	221525.77
6	Additional EPA expenses if implemented through VSS at rate Rs.1200/- in 0th Year, Rs.2400/- in 1st Year, Rs.1800/- in 2nd Year, Rs.600/- in 3rd Year, Rs.600/- in 4th Year,Rs.600/- in 5th Year ,Rs.600/- in 6th year, Rs.600/- in 7th year, Rs.600/- in 8th year, Rs.600/- in 9th year, Rs.600/- in 10th year @ Rs. 10200/- per ha for 248.626 ha	2535985.20
	Total	13468759.71

N.B:- Unit cost of LBCD structures of different dimension along with staggered trenches and percolation pits is enclosed as Annexure- I, II , III & IV.

TOTAL COST OF PROJECT

1.	Plantation over 248.626 ha @ Rs.29698/- per ha.	7383695.00
2	Total additional cost	13468759.71
	Total	20852454.71
3	Add 20% escalation	4170490.94
	Grand Total	25022945.65 or say 25022946.00

(Rupees two crore fifty lakh twenty-two thousand nine hundred forty-six) Only

A. PROVISION OF FUNDS AND FUND UTILIZATION

Rs. 25022946.00 (Rupees two crore fifty lakh twenty-two thousand nine hundred forty-six) only shall be deposited by the User Agency M/s Steel Authority of India Limited on approval of the scheme to the Ad-hoc CAMPA Account and the funds will be utilized for raising of Compensatory Afforestation by the Divisional Forest Officer, Keonjhar Division on allotment by the Principal Chief Conservator of Forests, Odisha, Bhubaneswar.

Divisional Forest Officer,
Keonjhar Division

CHAPTER- VII

DETAILS OF PROPOSED MONITORING MECHANISM

Compensatory Afforestation will be taken up in the identified site by the Range Officer, Champua Range of Keonjhar Division. The Range Forest Officer, Champua Range will undertake field checks of the works undertaken at the identified site and will be cross checked by the Asst. Conservator of Forests, (Affn.) and Divisional Forest Officer, Keonjhar Division. GPS co-ordinates along with other required informations of Compensatory Afforestation will be uploaded in the e-Greenwatch Portal of NIC, MoEF, Govt. of India for the purpose of online monitoring. Annual progress of plantation involving growth of planted seedlings, survival percentage etc. will be monitored and recorded in the plantation journal by the field staffs of Champua Range and reported to the Divisional Forest Officer for necessary action. The same thing will be reported to the Regional Chief Conservator of Forests, Rourkela Circle and Chief Conservator of Forests (PP&A), O/o the Pr. Chief Conservator of Forests, Odisha, Bhubaneswar and necessary corrective measures will be followed if required so.

Divisional Forest Officer,
Keonjhar Division

Annexure- I

ESTIMATE OF COST FOR ONE LOOSE BOULDER STRUCTURE

It has been proposed to treat drainage line through construction of Loose Boulder Structure over the plantation site of size 3 mtr span to the tune of 25 Nos and 2mtr span to the tune of 50 Nos. The unit cost of LBCD structure is produced hereunder-

The unit cost of LBCD structure of 2 mtr span size is produced hereunder

Sl. No.	Item of activity	Cost per unit (Rs.)	Total unit (No/ Cum)	Total cost (in Rs.)
1.	Leveling the unshaped surface of the selected site & layout the structure foundation L.S. 1 MD.	200	1	200
2.	Excavation of foundation in hard soil within initial lead of 50 mtr. including rough dressing and breaking of clods to maximum size 5 cm. to 7 cm. laying in layer not exceeding 0.3 in depth to strengthening both side U/S approx. bund of loose boulder structure.	66.67	3.63	242.01
	Base with apron- 1 x 3.70 x 3.00 x 0.30 = 3.33			
	Wing wall- 4 x 0.50 x 0.50 x 0.30 = 0.30			
	@ Rs.6667.00 per 100 cum.			
3.	Rough stone dry packing	571.87	8.65	4946.67
	up to GL			
	Base with apron- 1 x 3.70 x 3.00 x 0.30 =3.33			
	Wing wall- 4 x 0.50 x 0.50 x 0.30 = 0.30			
	Above GL			
	Super structure 1 x 2.00 x (2.70 + 0.60)/2 x 0.60 =1.980			
	Wing wall- 4 x 0.50 x 0.50 x 0.50 =0.50			
	Side wall-			
i.	2 x (0.50 + 1.10)/2 x 0.9 x 0.5 =0.72			
ii.	2 x (0.5 + 1.10)/2x 1.2 x 0.5 = 0.96			
iii.	2 x 0.6 x 0.6 x 0.5 =0.36			
iv.	2 x 1.0 x 0.5 x 0.5 =0.50			
	@ Rs.571.87 per cum			
	G. Total:-			5388.68 or 5389.00

Annexure- II

Span of 3 Mtr. Size

Sl. No.	Item of activity	Cost per unit (Rs.)	Total unit (No/ Cum)	Total cost (in Rs.)
1.	Leveling the unshaped surface of the selected site & layout the structure foundation L.S. 1 MD.	200	1	200.00
2.	Excavation of foundation in hard soil within initial lead of 50 mtr. including rough dressing and breaking of clods to maximum size 5 cm. to 7 cm. laying in layer not exceeding 0.3 in depth to strengthening both side U/S approx. bund of loose boulder structure.	66.67	6.42	428.02
	Base with apron- 1 x 5.10 x 4.00 x 0.30 = 6.12			
	Wing wall- 4 x 0.50 x 0.50 x 0.30 = 0.30			
	@ Rs.6667.00 per 100 cum.			
3.	Rough stone dry packing	571.87	18.57	10619.62
	up to GL			
	Base with apron- 1 x 5.10 x 4.00 x 0.30 =6.12			
	Wing wall- 4 x 0.50 x 0.50 x 0.30 = 0.30			
	Above GL			
	Super structure – 1 x (4.10 + 0.60)/2 x 1.00 x 3.0 =7.05			
	Wing wall- 4 x 0.50 x 0.50 x 0.50 =0.50			
	Side wall-			
i.	2 x (0.50 + 1.50)/2x 1.5 x 0.5 =1.50			
ii.	2 x (0.5 + 1.50)/2 x 2.0 x 0.5 = 2.00			
iii.	2 x 0.6 x 1.0 x 0.5 =0.60			
iv.	2 x 1.0 x 0.5 x 0.5 =0.50			
	@ Rs.571.87 per cum			
	G. Total:-			11247.64 Or 11248.00

Annexure- III

ESTIMATE OF COST FOR ONE SPECIAL SMC STRUCTURE (2.5 Mtr. x 0.5 Mtr. x 0.5 mtr.)

The unit cost of Staggered Trench of size 2.5 mtr x 0.5mtr x 0.5 mtr along with Agave Plant on the dugout soil is produced hereunder-

Sl. No.	Item of activity	Cost per unit (Rs.)	Total unit (No/ Cum)	Total cost (in Rs.)
1	Earth Work in excavation if staggered trench in hard soil including Rough dressing and leveling the beds and heaping the dugout soil at the downhill side of the trench and leveling the same too. Size of a trench = 2.5 Mtr x 0.5 Mtr x 0.5 Mtr @ 130 MD/ ha for 300 Nos.	86.67	1	86.67
2.	Cost of Agave Planting on the dugout soil and its maintenance including weeding, soil working, manuring, cost of fertilizer etc. for seven years 03 nos. of Agave plants per trench @ Rs.22.00 per plant on LS	22.00	3	66.00
	Total cost per trench	108.67	4	152.67
	Cost of 100 nos. of Staggered Trenches per ha			15267.00
	Cost of Staggered Trenches for 248.626 ha			3795773.14

Annexure- IV

ESTIMATE OF COST FOR ONE PERCOLATION PIT

Percolation Pit (1.0 mt X 1.0 mt X 1.0 mt)

Specification

Length	:	1.0 mt		
Width	:	1.0 mt		
Depth	:	1.0 mt		
Cross Section	:	1.0 mt X 1.0 mt	=	1.0 Sq mt
Earth Work	:	1.0 mt X 1.0 Sq mt	=	1.0 cum
Spacing in a staggered manner			=	10 mt X 10 mt

Sl. No.	Item of activity	Cost per unit (Rs.)	Total unit (Cum)	Total cost (in Rs.)
1	Earth Work in ordinary soil for 100 cum is as follows. Labour- Male Mulia=16Nos. @Rs.200/-= Rs. 3200/- Female Mulia =16 Nos.@Rs.200/-=Rs. 3200/-	64	400	25600.00
	Cost of 400 nos. of Percolation Pit per ha			25600.00
	Cost of Percolation Pit for 248.626 ha			6364825.60