

**SCHEME FOR COMPENSATORY
AFFORESTATION OVER 2.630 HA.
OF NON FOREST PRIVATE LAND
IDENTIFIED IN VILLAGE
KURUMULA UNDER PALLAHARA
TAHASIL IN KHAMAR RANGE OF
DEOGARH FOREST DIVISION**

FOREST DIVERSION OF 2.630 HA. OF FOREST
LAND FOR LAYING IRON ORE SLURRY PIPE
LINE IN KEONJHAR AND ANGUL DISTRICTS

BY

M/s JINDAL STEEL & POWER LTD.

ELEMENTS OF THE SCHEME FOR COMPENSATORY AFFORESTATION

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CHAPTER- I

BRIEF NOTE ON THE PROPOSED FOREST DIVERSION PROPOSAL

M/s Jindal Steel and Power Limited (JSPL) is setting up a Green field Integrated steel plant in Angul, Odisha. The proposed steel plant to be set up in Odisha will produce 12.5 MTPA steel and generate 2600 MW of power in phases. In the first phase, the company is setting up a 6 MTPA integrated steel plant and in the second phase, the proposal is to expand another 6.5 MTPA of capacities in the steel plant.

In order to meet the raw material requirement of the Integrated Steel Plant, JSPL proposes to lay a Slurry Pipeline from Barbil to Steel plant in Angul to transport Iron ore in the form of slurry.

To fulfil the increased requirement of raw material for 12.5 MTPA integrated steel plant, JSPL is planning to lay Iron Ore Slurry Pipeline from Barbil to Steel Plant at Angul. The output will be used in Pellet plant & Sinter Plant of JSPL Steel Plant located at Angul. The output from the Pellet plant and Sinter plant will further be utilized to produce sponge iron & pig iron which then be used in making steel.

In this mode of transportation of ore by pipeline, the solids are first ground to fine grain size and made into slurry with a liquid medium. The slurry is then pumped through the pipes to a desired destination.

Slurry pipeline transportation is particularly advantageous in those processes where the raw material is to be first pulverized for further processing such as iron ores meant for pelletisation and Sintering.

Slurry pipelines have advantages over other modes of solids transportation, as nearly all facilities are buried and out of sight with only a few widely separated surface structures. A minimum of land is used by the narrow direct right-of-way which is restored to its previous condition after the pipeline is laid. Slurry pipelines are environmentally preferred, as they do not cause noise, dust pollution or negative visual impacts. More efficient use of energy results in lower greenhouse gas emissions that alternate transport options.

Compared to normal surface mode like railways and road vehicles, the following advantages are particularly attractive

- a. They do not require the return of 'empties' to the starting point and as such are ideal for uni-directional traffic.
- b. They are insensitive to surface conditions such as storms, inclement weather, etc.
- c. Operating costs are low.

- d. Capital cost being the major cost of pipeline transportation inflationary influences have a small effect on transport cost.
- e. They are environmentally friendly.

Hence, overall no negative impact on the socio economic environment is anticipated.

The length of the proposed pipeline is 199 Km (approx.). The route traverses through two districts Keonjhar & Angul with three Forest Divisions Keonjhar, Deogarh & Angul of Odisha State. The entire route of slurry pipeline is proposed to be laid in the utility corridor of the National Highways, State Highways and that of ODRs in the above mentioned districts.

The present scheme aims at preparation of a site-specific Compensatory Afforestation scheme over 2.630 Ha of Non-Forest Private land identified in Village Kurumula under Pallahara Tahasil in Khamar Forest Range of Deogarh Division with a maintenance period of ten years.

CHAPTER- II

DETAILS OF LAND IDENTIFIED FOR COMPENSATORY AFFORESTATION

A. - LAND IDENTIFICATION AND JOINT VERIFICATION OF THE IDENTIFIED SITE.

The site for Compensatory Afforestation has been identified in village Kurumula under Pallahara Tahasil in Khamar Range of Deogarh Forest Division over 2.630 Ha and has been jointly verified by the Tahasildar - Pallahara, Revenue Inspector - Barkotia, Range Officer - Khamar Range and Forest Section Officer - Khamar. The above identified Non-Forest Private land has been purchased by M/s Jindal Steel & Power Ltd. The identified site bears Khata No. 151/151 and Plot Nos. 169/1913 and 169/1914.

B. - INFORMATION ON NON-ENCROACHMENT AND NON-ENCUMBRANCE.

The Tahasildar, Pallahara has given certificate that the land is free from encroachment and there is no court case pending against the said land of the identified non-forest private land for raising Compensatory Afforestation vide letter no. 4064, dated 26/08/2016.

C. - INFORMATION ON LAND STATUS.

The land scheduled and land status, identified and allotted for Compensatory Afforestation, is furnished hereunder:-

Tahasil	Village	Khata No.	Plot No.	Area(in Ha)	Kissam.
Pallahara	Kurumula	151/151	169/1913	2.428	Taila-1
			169/1914	0.202	Gharabari
			Total	2.630	

D.-SUITABILITY OF THE IDENTIFIED SITE FOR COMPENSATORY AFFORESTATION-

The identified land is free from encroachment and encumbrance. This land is neither covered under Section-4 of Orissa Forest Act, 1972 nor included in DLC report. The status of the allotted land is not forest as on **25.10.1980**.

The non-forest Private land identified in village Kurumula is in one patch. The area is situated on Fairly plain ground profile. The area is prone to podu cultivation. The topography of the area is mainly Plain with eroded soil profile having exposed rocks

at places necessitating soil conservation measures. However, good depth of sandy-loam soil is still available which is conducive for plantation with suitable soil conservation measures. The average temperature varies from 13.5o C minimum in December to 45^oC maximum in May. The annual rainfall varies from 1200 mm to 1500 mm. The maximum rainfall is received during the rainy season from July to September. The identified land is therefore taken up for Compensatory Afforestation in Block Plantation model @ 1600 seedlings/ha over 2.630 Ha with site specific SMC measures. The identified site is situated in village Kurumula. The site has been properly demarcated on the field along with well defined boundary line with stone cairns. 4' height RCC pillar have been installed over the land and *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 Kurumula 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 DGPS survey and DGPS 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 named- Asst. General Manager, (Slurry Pipeline Project) Jindal Steel & Power Ltd. 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, Deogarh 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. *Syzgium cumini*(Jamu)
2. *Adina cardifolia*(Kuruma)
3. *Anogeissus latifolia*(Dhaura)
4. *Accacia catechu* (Khair)
5. *Dalbergia sissoo*(Sissoo)
6. *Azadirachta indica*(Neem)
7. *Gmelina arborea* (Gambar)
8. *Terminalia belerica*(Bahada)
9. *Terminalia chebula*(Harida)
10. *Pongamia pinnata* (Karanja)
11. *Emblica officinalis* (Ainla)
12. *Tectona grandis* (Teak)

B. PRE-PLANTING OPERATION

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

Nursery will be raised @ 1760 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, Khamar Range) with DGPS coordinates, forward and backward bearing, pillar No. and distance between pillars inscribed in it. A DGPS map in the scale of 1:4000 has been prepared along with DGPS 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 @1600 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 heel 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 construction of LBCD structures of 3 mtr span to the tune of 20 Nos and 2 mtr span to the tune of 30 Nos over the entire plantation site and staggered trenches of dimension 2.5 x 0.5 x 0.5 mtr to the tune of 60 Nos. per ha over 2.630 ha.

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 Kurumula VSS. Barbed wire fencing is suggested as a safeguard measures against grazing as well as other biotic pressure including shifting cultivation.

CHAPTER- VI

COST STRUCTURE OF PLANTATION, PROVISION OF FUNDS AND UTILIZATION

A. ESTIMATE OF COST FOR 1.00 Ha. UNDER AR PLANTATION MODEL

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

COST NORM FOR BLOCK PLANTATION @ 1600 PLANTS PER HECTARE
WAGE RATE Rs. 200/- PER DAY

Sl. No.	Items of work	Preferable Period of Execution	Person days	Labour cost @ Rs. 200/- per day	Material cost (Rs.)	Total cost (Rs.)
1	2	3	4	5	6	7
0th year (Advance work) pre-planting operation						
1	Survey, Demarcation & pillar posting.	Nov/Dec	2	400	0	400
2	Site preparation	Nov/Dec	8	1600	0	1600
3	Alignment and stacking of pits	Jan/Feb	2	400	0	400
4	Digging of Pitting (30cm. cube)	Feb/Mar	40	8000	0	8000
5	Nursery cost (6 months old seedling) part @ Rs. 9.45/- seedling (Rs. 6.57/- in 0 th year + Rs. 2.78/- in 1 st year) for 1760 seedlings (1600+160)	Jan/Mar	0	0	11739	11739
	Total		52	10400	11739	22139
1st year / planting year						
6	Nursery cost (6 months old seedling) balance @ Rs. 2.78/- for 1760 seedlings	Apr/Jul	0	0	4893	4893
7	Carriage & planting, Casualty Replacement and application of insecticides, manure etc.	Jul/Aug	21	4200	0	4200
8	Cost of insecticide and fertilizer (a) NPK @ 50 gms/plant as basal dose = 80 kg @ Rs 24/- per kg = Rs. 1920 (b) Urea @ 70 gms/plant in two subsequent doses @ Rs. 6/- per kg = Rs. 672.00 (c) Granular insecticide (Themet, Forate etc.) @ 5 gms/plant @Rs. 80/- per kg = Rs. 640.00		0	0	3232	3232
9	1 st weeding (complete weeding)	Aug/Sep	7	1400	0	1400
10	Manuring Urea 35 gm	Aug/Sep	5	1000	0	1000
11	2 nd weeding (complete weeding)	Sep/Oct	5	1000	0	1000

Sl. No.	Items of work	Preferable Period of Execution	Person days	Labour cost @ Rs. 200/- per day	Material cost (Rs.)	Total cost (Rs.)
1	2	3	4	5	6	7
12	Soil working (50cms. Radius around plants) & manuring Urea 35 gms per plant	Sep/Oct	7	1400	0	1400
13	Soil conservation measures in the form of staggered trenches of size 2m x 2m x 0.5 m @ 30 nos. Per ha.	Sep/Oct	10	2000	0	2000
14	Fire line tracing and inspection path	Feb/Mar	3	600	0	600
15	Watch and ward	Aug/Mar	7	1400	0	1400
	Total		65	13000	8125	21125
2nd Year Maintenance						
16	Casualty replacement (10%) with Nursery cost	Jul/Aug	4	800	1512	2312
17	weeding (complete weeding)	Sep/Oct	6	1200	0	1200
18	Cost of fertilizer (NPK @ 70 gms/plant)(Rs 24/- per kg & insecticide @ 5 gms/plant for 160 plants 800 gms @ Es. 80/- per kg)		0	0	2752	2752
19	Soil working (50cms. Radius around plants)	Oct/Nov	7	1400	0	1400
20	Application of fertilizer and insecticide	Sep/Oct	4	800	0	800
21	Fire line tracing (2m wide fire line over 400 m long)	Feb/Mar	3	600	0	600
22	Watch and ward	Apr/Mar	15	3000	0	3000
	Total		39	7800	4264	12064
3rd Year Maintenance						
23	Weeding and application of fertilizer	Aug/Sep	7	1400	0	1400
24	Cost of fertilizer(NPK @ 50 gms/plant) Rs 24/- per kg		0	0	1920	1920
25	Soil working (50cms. Radius around plants) & application of fertilizer	Oct/Nov	7	1400	0	1400
26	Fire line tracing (2m wide fire line over 400 m long) & cultural operation	Feb/Mar	3	600	0	600
27	Watch and ward	Apr/Mar	15	3000	0	3000
	Total		32	6400	1920	8320

4th Year Maintenance						
28	Fire line tracing (2m wide fire line over 400 m long) & cultural operation	Feb/Mar	3	600	0	600
29	Watch and ward	Apr/Mar	15	3000	0	3000
	Total		18	3600	0	3600
5th Year Maintenance						
30	Fire line tracing (2m wide fire line over 400 m long) & cultural operation	Feb/Mar	3	600	0	600
31	Watch and ward	Apr/Mar	15	3000	0	3000
	Total		18	3600	0	3600
6th Year Maintenance						
32	Fire line tracing (2m wide fire line over 400 m long) & cultural operation	Feb/Mar	3	600	0	600
33	Watch and ward	Apr/Mar	15	3000	0	3000
	Total		18	3600	0	3600
7th Year Maintenance						
34	Fire line tracing (2m wide fire line over 400 m long) & cultural operation	Feb/Mar	3	600	0	600
35	Watch and ward	Apr/Mar	15	3000	0	3000
	Total		18	3600	0	3600
8th Year Maintenance						
36	Fire line tracing (2m wide fire line over 400 m long) & cultural operation	Feb/Mar	3	600	0	600
37	Watch and ward	Apr/Mar	15	3000	0	3000
	Total		18	3600	0	3600
9th Year Maintenance						
38	Fire line tracing (2m wide fire line over 400 m long) & cultural operation	Feb/Mar	3	600	0	600
39	Watch and ward	Apr/Mar	15	3000	0	3000
	Total		18	3600	0	3600
10th Year Maintenance						
40	Fire line tracing (2m wide fire line over 400 m long) & cultural operation	Feb/Mar	3	600	0	600
41	Watch and ward	Apr/Mar	15	3000	0	3000
	Total		18	3600	0	3600
	Grand Total					

ABSTRACT

Sl. No.	Year	No. Person Days	Labour cost @ Rs. 200/- per day	Material Cost	Total Cost (Rs.)
1	0 th year	52	10400	11739	22139
2	1 st year	65	13000	8125	21125
3	2 nd year	39	7800	4264	12064
4	3 rd year	32	6400	1920	8320
5	4 th year	18	3600	0	3600
6	5 th year	18	3600	0	3600
7	6 th year	18	3600	0	3600
8	7 th year	18	3600	0	3600
9	8 th year	18	3600	0	3600
10	9 th year	18	3600	0	3600
11	10 th year	18	3600	0	3600
	Total	314	62800	26048	88848
	Total Cost Norm per Ha.				88848
	Total Cost of plantation (2.630 Ha.)				233670

ADDITIONAL COST PROPOSED

Sr. No.	Items of work	No / Area	Unit	Rate (Rs./Unit)	Amount (Rs.)
1	SMC measures- 20 nos. LBCD structure of 2mtr span @ Rs. 5389/- each.	20	No	5389	107780
2	SMC measures- 10 nos. LBCD structure of 3 mtr span @ Rs. 11248/- for each.	10	No	11248	112480
3	Staggered trenches @ Rs. 9160/- for 60 No's per Ha over 2.630 Ha.	2.630	Ha	9160	24109
4	Barbed wire fencing @ Rs. 7,50,500/- over 0.80 Km, Maintenance 5% - Rs. 30020/- per annum for 10 years and Provision of Gate 1 no. @ Rs. 25,000/- per gate.	1	Unit	925600	925600
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. 1909/- for 2.630 Ha.	2.630	Ha	1909	5024

Sr. No.	Items of work	No / Area	Unit	Rate (Rs./Unit)	Amount (Rs.)
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/- for 2.630 Ha.	2.630	Ha	10200	26846
	Total				1201839

N.B:- Unit cost of LBCD structures of different dimension along with barbed wire fencing is enclosed as Annexure- I, II, III & IV


TOTAL COST OF THE PROJECT

1	Plantation over 2.630 Ha, @ Rs. 88848/- per ha.	233670.00
2	Total additional cost	1201839.00
	Total	1435509.00
3	Add 20% escalation	287102.00
	Grand Total	1722611.00

(Rupees Seventeen Lakh twenty two Thousand six Hundred eleven) Only.

B. PROVISION OF FUNDS AND FUND UTILIZATION



Rs.17,22,611.00 (Rupees Seventeen Lakh twenty two Thousand six Hundred eleven) Only shall be deposited by the user agency M/s Jindal Steel & Power Ltd. 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, Deogarh Division on allotment by the Principal Chief Conservator of Forests, Odisha, Bhubaneswar.


 26/04/17
 Divisional Forest Officer,
 Deogarh Division

CHAPTER- VII

DETAILS OF PROPOSED MONITORING MECHANISM

Compensatory Afforestation will be taken up in the identified site by the Range Officer, Khamar Forest Range of Deogarh Division. The Range Forest Officer, Khamar Forest 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, Deogarh Division. DGPS co-ordinates along with other required information of Compensatory Afforestation will be uploaded in the e-Green watch Portal of NIC, MoEF, Government 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 Khamar Forest 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.


26/04/17
Divisional Forest Officer,
Deogarh Division


Annexure- I

ESTIMATE OF COST FOR ONE LOOSE BOULDER STRUCTURE

It has been proposed to take up Soil Conservation Measures by construction of Loose Boulder Structure over the plantation site of size 3 mtr span to the tune of 10 No's and 2 mtr span to the tune of 20 No's. 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- $1 \times 3.70 \times 3.00 \times 0.30 = 3.33$			
	Wing wall- $4 \times 0.50 \times 0.50 \times 0.30 = 0.30$			
	@ Rs.6667.00 per 100 cum.			
3.	Rough stone dry packing up to GL	571.87	8.65	4946.67
	Base with apron- $1 \times 3.70 \times 3.00 \times 0.30 = 3.33$			
	Wing wall- $4 \times 0.50 \times 0.50 \times 0.30 = 0.30$			
	Above GL			
	Super structure $1 \times 2.00 \times (2.70 + 0.60)/2 \times 0.60 = 1.980$			
	Wing wall- $4 \times 0.50 \times 0.50 \times 0.50 = 0.50$			
	Side wall-			
i.	$2 \times (0.50 + 1.10)/2 \times 0.9 \times 0.5 = 0.72$			
ii.	$2 \times (0.5 + 1.10)/2 \times 1.2 \times 0.5 = 0.96$			
iii.	$2 \times 0.6 \times 0.6 \times 0.5 = 0.36$			
iv.	$2 \times 1.0 \times 0.5 \times 0.5 = 0.50$			
	@ Rs.571.87 per cum			
	Grand 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- $1 \times 5.10 \times 4.00 \times 0.30 = 6.12$			
	Wing wall- $4 \times 0.50 \times 0.50 \times 0.30 = 0.30$			
	@ Rs.6667.00 per 100 cum.			
3.	Rough stone dry packing	571.87	18.57	10619.62
	up to GL			
	Base with apron- $1 \times 5.10 \times 4.00 \times 0.30 = 6.12$			
	Wing wall- $4 \times 0.50 \times 0.50 \times 0.30 = 0.30$			
	Above GL			
	Super structure - $1 \times (4.10 + 0.60)/2 \times 1.00 \times 3.0 = 7.05$			
	Wing wall- $4 \times 0.50 \times 0.50 \times 0.50 = 0.50$			
	Side wall-			
i.	$2 \times (0.50 + 1.50)/2 \times 1.5 \times 0.5 = 1.50$			
ii.	$2 \times (0.5 + 1.50)/2 \times 2.0 \times 0.5 = 2.00$			
iii.	$2 \times 0.6 \times 1.0 \times 0.5 = 0.60$			
iv.	$2 \times 1.0 \times 0.5 \times 0.5 = 0.50$			
	@ Rs.571.87 per cum			
	Grand 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 (inRs.)
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 60 nos. of Staggered Trenches per Ha			9160.00
	Cost of Staggered Trenches for 2.630 Ha			24109.12

Annexure- IV

ESTIMATE OF COST FOR ONE KM BARBED WIRE FENCING

No of pillars required 500 nos.			
Cost of 1 pillar	:	Rs.	568.00
Transportation charges	:	Rs.	244.00
Cost of base fixing	:	Rs.	244.00
Cost of fixing barbed wire @ 49.00	:	Rs.	49.00
Total Cost for fixing 1 pillar	:	Rs.	1105.00
Cost for 500 pillars	:	Rs.	5,52,500.00
Cost of barbed wire (1 Qntls.) @ 11,000.00			
Cost barbed wire (5+2) strand			
7500 mtrs or 18 Qntls.	:	Rs.	1,98,000.00
Total cost for 1 Km.	:	Rs.	7,50,500.00
Total cost for fencing over 0.80 Km	:	Rs.	6,00,400.00
Maintenance 5% - Rs.30,020/- per annum			
for 10 years	:	Rs.	3,00,200.00
Provision of Gate 1 no. @ Rs.25,000/- per gate	:	Rs.	25,000.00
Total barbed wire fencing over 0.80 KM	:	Rs.	9,25,600.00