Government of Maharashtra

By Speed Post

No. FLD- 2022/C.R.01/F-10
Revenue and Forest Department,
Mantralaya, Mumbai- 400 032.
Date: 29/05/2023

To,
The Secretary,
Ministry of Environment, Forests & Climate Change,
Government of India,
New Delhi.

Sub.:- Forest Land-Nandurbar
Diversion of 73.94 ha. forest land for construction of Kareghat Minor Irrigation Tank at Kareghat, Tal. Nawapur, District Nandurbar in the State of Maharashtra (Online No. FP/MH/IRRIG/61238/2020)-regarding.

Ref: 1. Your Office Letter No. 8-28/2022/FC, Dt.02.05.2023
2. APCCF & Nodal Officer Letter No. Desk-17/Nodal/Dhule/RS-I/ID-12942(25)/573/2023-24, Dt.24.05.2023

MoEF&CC, Government of India has sought additional information with respect to proposal for diversion of 73.94 ha. forest land for construction of Kareghat Minor Irrigation Tank at Kareghat, Tal. Nawapur, District Nandurbar.

2. Additional Principal Chief Conservator of Forests & Nodal Officer, Maharashtra State, Nagpur has submitted compliance report to the Government of Maharashtra vide letter under reference no.2, Compliance Report submitted by the APCCF & Nodal Officer is self-explanatory and attached herewith for further necessary action in the matter.

(Ganesh Jadhao)
Under Secretary to
the Government of Maharashtra
Under Secretary
Revenue and Forests Department
Hutatma Rajguru Chowk
Madam Cama Road, Mantralaya
Mumbai 400 032

Encl: As above.

Copy to:
1. Additional Principal Chief Conservator of Forests and Nodal Officer, Nagpur.
2. Chief Conservator of Forests (T), Dhule.

OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (HEAD OF FOREST FORCE), MAHARASHTRA STATE

ADDITIONAL PRINCIPAL CHIEF CONSERVATOR OF FORESTS AND NODAL OFFICER,
First Floor, 'B' Wing, Van Bhavan, Civil Lines, Nagpur-440001.
Tel no. (0712) 2530166, 2556916, Fax no. (0712) 2550675 E-mail- apccfnodal@mahaforest.gov.in

No. Desk-17/Nodal/Dhule/RS-I/ID-12942(25)/573 /2023-24
Nagpur – 440 001, Date : 24/05/2023

To,

Principal Secretary (Forests),
Revenue and Forest Department,
Mantralaya, Mumbai-32.

Sub:- Diversion of 73.94 ha. forest land for construction of Kareghat Minor Irrigation Tank at Kareghat, Tal. Nawapur, District Nandurbar in the State of Maharashtra (Online No. FP/MH/IRRIG/61238/2020)-regarding.

Ref 1. Government of India, Ministry of Environment Forests & Climate Change, Indira Paryavaran Bhavan, New Delhi letter No. 8-28/2022/FC, dated 02/05/2023.
2. Conservator of Forests, (T.) Dhule letter No.D-5/Nodal/C.R./44,Dt.17/05/2023.

Sir,

The Government of India, Ministry of Environment, Forest and Climate Change, New Delhi Vide letter under reference No. 1 has sought compliance on 7 points. Accordingly, the Conservator of Forests (T.), Dhule vide letter under reference No. 2 has submitted the compliance of shortcoming in this regard to this office. The compliance report as desired by Government of India vide letter dated 02/05/2023 is submitted as under-

Sr. No.	Points	Compliance
i.	The KML file of proposed diversion area is in line features which is not appropriate for calculation of area and the same can not be analyzed through DSS tool. Therefore the revised KML file of proposed diversion area showing all components shall be submitted in polygon form.	The KML file of proposed diversion area showing all components has now been uploaded in Part-1 on PARIVESH Web Portal. The copy of KML file in CD's is enclosed herewith as **Annexure-I**
ii.	The CAT plan is required to be approved by the competent authority as mentioned in the Para 9.2(vi) of the Handbook of guidelines dated 28.03.2019. Accordingly, the copy of the approval of the CAT plan needs submission.	The copy of approved CAT Plan is enclosed herewith as **Annexure-II**

iii.	The cost of Compensatory Afforestation as mentioned in the Cost Benefit analysis is not as per with the cost contained in the CA scheme. The Cost Benefit analysis therefore needs revision and the same shall be submitted as per the prescribed format.	The revised Cost-Benefit analysis has now been uploaded on PARIVESH Portal in Part-I. The copy of the same is enclosed herewith as **Annexure-III**
iv.	The State Govt. vide letter dated 12.09.2022 had informed that the total Non- forest land involved in the project is 77.54 ha and later vide letter dated 13.12.2022 informed that 3.60 ha non-forest area is involved in the project for the construction of canal. The Part-1 of the proposal mentions the NFL to be Nil. The State Govt shall verify the total Non forest land involved in the project and the accurate details shall be filled in the Part-1 of the proposal online.	Due to some typographical error an area of 77.54 ha Non-forest land was incorrectly mentioned in the State Govt. letter dated 12.09.2022. Earlier it was proposed that 73.94 ha. forest land for construction of minor irrigation tank and area of 3.60 ha. Non-forest land will be used for construction of canal. Hence the State Govt. vide letter dated 13.12.2022 mentioned an area of 3.60 ha Non-forest land in the project. Later on, the Irrigation Department has decided to use Piped the Distribution Network (PDN), an underground pipe line network in the wake of the Govt. of Maharashtra policy to distribute irrigation water through PDN, vide Govt Resolution of 09.06.2016 and revised on dated 13.01.2017 instead of Canal system as it overcomes the lacunas of the flow irrigation system viz land acquisition, lavish use of water by the farmers in the upper reaches of the canal. This PDN system will also serve the drinking water purpose to this water scarce area. Therefore, in the present project there is no requirement of the Non-forest area. Hence, it has been mentioned as 'Nil' in the Part-I form on PARIVESH Portal.
v.	The KML file of the Non forest land involved in the project is required to be submitted in polygon form.	In the present proposal requirement of the Non-forest land is Zero due to which the KML file of Non-forest land has not been uploaded on PARIVESH Portal.
vi.	The State Govt. has reported 91.26 ha Non forest land for CA whereas the area of KML file as provided has been found to be 153 ha. Therefore the correct KML file of 91.26 ha Non-forest/ Revenue land located in Villages Sutare and Satarpada, is required to be submitted and uploaded online on the PARIVESH portal.	The KML file of 91.26 ha Non-forest land located in Villages Sutare and Satarpada have been uploaded online on the PARIVESH portal. The revised Copy of KML File in CD's is enclosed herewith as **Annexure-I**

vii.	The KML file (153 ha) as submitted for the Compensatory Afforestation site apparently contains encroachment and roads etc. Moreover the presence of settlements can also be seen within. Therefore apart from submission of correct KML file as above the State Govt shall ensure that the area proposed for CA is free from all encumbrances.	Non-forest land area of 91.26 ha. has been provided by the user agency to forest department. But the DCF, Dhule has given suitability certificate for 87.00 ha and remaining 4.26 ha land for Compensatory Afforestation is not suitable for plantation. Revised KML file of 91.26 ha Non-forest land located in Villages Sutare and Satarpada, Dhule district have been uploaded online on the PARIVESH portal. Encroachments as visible within the given CA land are temporary in nature and these will be removed before according the final approval to this project under the FC Act, 1980. The revised Copy of KML File in CD's is enclosed herewith as **Annexure-I**

It is therefore requested that above compliance report may kindly be forwarded to the Central Government for further consideration of the proposal.

Encl:- As above

24/5/23

(Naresh Zurmure)
Addl. Principal Chief Conservator of Forests
& Nodal Officer

Copy to The Conservator of forests (T), Dhule for information.
Copy to The Deputy Conservator of forests, Nandurbar Forest Division, Nandurbar for information.
Copy to The Executive Engineer, Nandurbar Medium Project Divisional Unit, Nandurbar for information.

Dhule Circle/Id-12942/73.94 ha.

वनसंरक्षक, (प्रादेशिक) धुळे यांचे कार्यालय.

पोलीस प्रशिक्षण केंद्राजवळ, लेनीन चौक, धुळे ४२४ ००१.

दुरध्वनी क्र.०२५६२/२४५३८३ फॅक्स क्र. २४५९४०,ई-मेल: ccftdhule@mahaforest.gov.in

पत्र/ईमेलव्दारा

क्र.कक्ष-५/नोडल/प्र.क्र./ ४४ /२०२३-२४
धुळे ४२४ ००१ दिनांक १५ /५/२०२३

प्रति,
मा. अपर प्रधान मुख्य वनसंरक्षक व
केंद्रस्थ अधिकारी, म.रा.नागपूर

विषय:- वजमीन-नंदुरबार
वन(संवर्धन)अधिनियम-१९८० अंतर्गत कारेघाट लघुसिंचन तलावासाठी कारेघाट ता.नवापुर जि.नंदुरबार येथील ७३.९४ हे. वनक्षेत्र वळते करणाबाबत.

संदर्भ:-१) केंद्र शासनाचे पत्र क्र.८-२८/२०२२/FC/Dt.May-२०२३
२) आपले कडील पत्र क्र. पत्र क्र.D-१७/Nodal/Dhule/RS-I/ID-१२९४२ (२५)/३५८ दि.४.५.२०२३
३) उपवनसंरक्षक, नंदुरबार यांचेकडील पत्र क्र.अ/जमीन/कारेघाट/२१३ दि.१६.५.२०२३

केंद्र शासनाने त्यांचेकडील संदर्भित क्र.१ चे पत्रात उपस्थित केलेल्या त्रुटींची पुर्तता उपवनसंरक्षक, नंदुरबार यांनी त्यांचेकडील संदर्भित क्र.३ चे पत्रान्वये संबंधित यंत्रणेकडुन करुन घेऊन पुर्तता अहवाल या कार्यालयास सादर केलेला आहे. सदरचा पुर्तता अहवाल तपासुन माहिती व पुढील योग्य त्या कार्यवाहीसाठी यासोबत जोडुन सविनय सादर.

सुलभ संदर्भासाठी उपवनसंरक्षक, नंदुरबार यांचेकडील संदर्भित क्र.३ चे पत्राची प्रत देखील यासोबत जोडुन सविनय सादर.

सहपत्र- वरील प्रमाणे

(दि.वा.पगार)
वनसंरक्षक (प्रादेशिक), धुळे

प्रतिलिपी- उपवनसंरक्षक, नंदुरबार वनविभाग यांना त्यांचेकडील संदर्भित क्र.३ चे पत्राचे अनुषंगाने माहिती व पुढील योग्य त्या कार्यवाहीसाठी रवाना.

प्रतिलिपी-The Executive Engineer Nandurbar Medium Project Divisional Unit, Nandurbar

Dhule 23/5

Dhule 23/5 898 23/5/23

Office of The Deputy Conservator Of Forest,
Nandurbar Forest Division, Nandurbar
"Vanbhavan", Sardar Vallabhbhai Patel Chouk, Mission Highschool Taloda Road,
Nansurbar Ta. Dist- Nandurbar Pin-425412
Telephone 02564-234228 Email: dycf_Shahada@yahoo.co.in

महाराष्ट्र वन विभाग

Letter

Sub:- Diversion of 73.94 ha forest land for construction of Kareghat Minor Irrigation Tank at Kareghat, Tal. Nawapur, District Nandurbar in the State of Maharashtra (Online No. FP/MH/IRRIG/61238/2020) - regarding.

जावक क्रं.अ/जमीन/कारेघाट/ 213 /सन 2023-24
नंदुरबार 425412 दिनांक- 16 /05/2023

प्रति,
म. वनसंरक्षक (प्रा.)
धुळे.

संदर्भ:- 1. आपले कार्यालयचे पत्र जा.क्र.कक्ष-5/नोडल/प्र.क्र./36/2023-24 दि.08.05.2023
2 मा. अपर प्रधान मुख्य वनसंरक्षक व केंद्रस्थ अधिकारी नागपुर यांचे पत्र क्रं. Desk/nodal/dhule/RS-I/ID-12942/25/358/2023-24 Dt. 08/4/05/2023
3 क्रेंद्र शासनाचे पत्र 8/28 02.05.2023 रोजीचे.

उपरोक्त विषयांकित प्रकरणी कळविण्यात येते कि, संदर्भ क्रं. 3 च्या अनुषंगाने त्यांनी उपस्थित केलेल्या त्रुटीची पुर्तता करुन अहवाल माहीती व आवश्यक कार्यवाहीस्तव सविनय सादर करीत आहे.

सहपत्र- वरीलप्रमाणे.

16 MAY 2023

(कृ.बा.भवर)
उपवनसंरक्षक,
नंदुरबार वनविभाग, नंदुरबार

प्रतिलिपी- मा. अपर प्रधान मुख्य वनसंरक्षक व केंद्रस्थ अधिकारी नागपुर यांना माहीतीस्तव सविनय सादर.
प्रतिलिपी- कार्यकारी अभियंता नंदुरबार मध्यम प्रकल्प विभागीय पथक नंदुरबार यांना माहीतीस्तव सस्नेह अग्रेषित.

S.No.	MoEF&CC Points	Compliance
1	The KML file of proposed diversion area is in line features which is not appropriate for calculation of area and the same cannot be analyzed through DSS tool. Therefore, the revised KML file of proposed diversion area showing all components shall be submitted in polygon form	KML file of proposed diversion area showing all components have been uploaded in Part-I form of PARIVESH.
2	The CAT plan is required to be approved by the competent authority as mentioned in the para 9.2(vi) of the Handbook of guidelines dated 28.03.2019. Accordingly, the copy of the approval of the CAT plan needs submission.	Copy of CAT plan is attached herewith for an approval.
3	The cost of Compensatory Afforestation as mentioned in the Cost Benefit analysis is not at par with the cost contained in the CA scheme. The Cost Benefit analysis therefore needs revision and the same shall be submitted as per the prescribed format.	Cost contained in the CA scheme has now been included in the Cost Benefit analysis and the revised Cost-Benefit analysis has been uploaded in Part-I form of PARIVESH.
4	The State Govt. vide letter dated 12.09.2022 had informed that the total Non-forest land involved in the project is 77.54 ha and later vide letter dated 13.12.2022 informed that 3.60 ha non-forest area is involved in the project for the construction of canal. The Part-I of the proposal mentions the NFL to be Nil. The State Govt shall verify the total Non-forest land involved in the project and the accurate details shall be filled in the Part-I of the proposal online.	Due to some typographical error an area of 77.54 ha Non-forest land was incorrectly mentioned in the State Govt. letter dated 12.09.2022. Along with 73.94 ha forest land for construction of Minor irrigation tank, an area of 3.60 ha was earlier proposed to be taken by the irrigation department for the construction of Canal. Accordingly, the State Govt. vide letter dated 13.12.2022 mentioned an area of 3.60 ha Non-forest land in the project. Later on, the Irrigation Department has decided to use Pipe Distribution Network (PDN) an underground pipe line network in the wake of the Govt. of Maharashtra policy to distribute irrigation water through PDN, vide Govt. Resolution of 09.06.2016 and revised on dated 13.01.2017 instead of Canal system as it overcomes the lacunas of the flow irrigation system viz land acquisition, lavish use of water from the farmers in the upper reaches of the canal. This PDN system will also serve the drinking water purpose to this water scarce area. Therefore, in the present project there is no requirement of the Non-forest area. Hence, it has been mentioned as '**Nil**' in the Part-I form on PARIVESH.
5	The KML file of the Non forest land involved in the project is required to be submitted in polygon form.	In the present proposal requirement of the Non-forest land is **Zero** due to which the KML file of Non-forest land has not been uploaded on PARIVESH.
6	The State Govt. has reported 91.26 ha Non forest land for CA whereas the area of KML file as provided has been found to be 153 ha. Therefore the correct KML file of 91.26 ha Non-forest/ Revenue land located in Villages Sutare and Satarpada, is required to be submitted and uploaded online on the PARIVESH portal.	KML file of 91.26 ha Non-forest land located in Villages Sutare and Satarpada have been uploaded online on the PARIVESH portal.
7	The KML file (153 ha) as submitted for the Compensatory Afforestation site apparently contains encroachment and roads etc. Moreover, the presence of settlements can also be seen within. Therefore, apart from submission of correct KML file as above the State Govt shall ensure that the area proposed for CA is free from all encumbrances	Compensatory Afforestation (CA) area has been provided to Forest Department is 91.26 ha but the DCF, Dhule has given suitability certificate for 87 ha and remaining 4.26 ha land for Compensatory afforestation is not suitable for plantation. Revised KML file of 91.26 ha Non-forest land located in Villages Sutare and Satarpada, Dhule district have been uploaded online on the PARIVESH portal. Encroachments as visible within the given CA land are temporary in nature and these shall be removed before according the final approval to this project under the FC Act, 1980.

(Krishna B Bhavar)
Deputy Conservator Of Forest
Nandurbar Forest Division, Nandurbar

Scanned with CamScanner

Cost-Benefit Analysis

Kareghat M.I. Tank Project

Table-A: Cases under which a cost-benefit analysis for forest diversion are required

S. No.	Nature of proposal	Applicable/ not applicable	Remarks
1	All categories of proposals involving forest land upto 20 hectares in plains and upto 5 hectare in hills.	Not applicable	These proposals may be considered on a case-to-case basis and value judgment.
2	Proposal for defence installation purposes and oil prospecting (prospecting only).	Not applicable	In view of national Priority accorded to these sectors, the proposals would be critically assessed to help ascertain that the utmost minimum forest land is diverted for non-forest use.
3	Habitation, establishment of industrial units, tourist lodges complex and other building construction.	Not applicable	These activities being detrimental to protection and conservation of forest, as a matter of policy, such proposals would be rarely entertained.
4	All other proposals involving forest land more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission lines, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, location specific installations like micro-wave stations, auto repeater centers, TV towers etc.	Applicable	These are cases where a cost-benefit analysis is necessary to determine when diverting the forest land to non-forest use in the overall public interest.

Table-B: Estimation of cost of forest diversion

<table>
<tr><th>S. No.</th><th>Parameters</th><th>Remarks</th></tr>
<tr><td>1</td><td>Ecosystem services losses due to proposed forest diversion.</td><td>Economic value of loss of eco-system services due to diversion of forests land and in this project total forest land to be diverted is 73.94 ha. Hence, following are the calculations are made on the basis of NPV Guidelines issued by Government of India, Ministry of Environment, Forest and Climate Change, (Forest Conservation Division), New Delhi vide no. File No.5-3/2011-FC(Vol-I) dated 6th January 2022.
<table>
<tr><th>Particulars</th><th>Area</th><th></th><th>NPV Rate</th><th>Amount</th></tr>
<tr><td>Dam</td><td>73.94</td><td>x</td><td>1228590</td><td>90841945</td></tr>
</table>
= Rs. 908.41 Lakhs</td></tr>
</table>

2	Loss of animal husbandry productivity, including loss of fodder.	Estimated loss of animal husbandry productivity due to diversion of @ 10% of NPV 10% x 1228590 x 73.94 ha = Rs.90.84 Lakhs
3	Cost of human resettlement.	Loss of Human Settlement = Rs. 0 Lakhs
4	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways, etc.) on forest land, which would require forest land if these facilities were diverted due to the project.	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways, etc.) on forest land. Hence, Rs. 0 Lakhs
5	Possession value of forest land diverted.	30% of NPV = **Rs. 272.52 Lakhs**
6	Cost of suffering to oustees.	Nil
7	Habitat Fragmentation Cost.	This project involves forest land along river bank, nalla which is habitat for various wild animals and birds found in that area. But there is no Tiger project, no National Park, Wildlife sanctuary or Eco-sensitive zone of protected area. Habitat fragmentation cost calculated at 50% of NPV = Rs. 454.20 Lakhs
8	Compensatory Afforestation and soil & moisture conservation cost.	The actual cost of compensatory afforestation scheme for an area of 91.26 ha and soil & moisture conservation and its maintenance in future = Rs 40713687.45/- Or say **Rs. 407.136 Lakhs**

Table-C–Existing guidelines for estimating benefits of forest-diversion in CBA

Sr. No.	Parameters	Remarks
1	Increase in productively attribute to the specific project.	a) Net increase in agricultural produce for 50 years. Per year benefits are at Rs. 70,000/ 4 Villages/ year = 280000 x 50 = Rs. 1400 Lakhs b) It is proposed to develop fisheries produced reservoir, the average reservoir area between FSL and M.D.D.L area is Ha annual production of @5000 Kg/1000 Ha, amounting to Rs 6.930 Lakhs per year after deduction of expenditure. Thus the overall benefits on this account in 50 Years will be = 6.93x 50 x 87.00 x 8.10 = Rs. 2441.78 Lakh

		c) Animal husbandry produce 10% of NPV = 908.41 x 10% = 90.41 Lakhs
2	Benefits to economy due to the specific project.	It is assumed that there will be an overall benefit to the economy at 50% of increase in the agricultural output worked out under parameter 1 (a). Thus, benefit due to project on this account will be = Rs 1400 Lakhs 50% x 1400 = 700 Lakhs
3	No. of population benefited due to specific project.	Overall all 4 villages will be benefited in the command areas due to this project. Total population of these villages is 70000 persons'. Total number of families benefited will be @17415 family. Assuming increase in income per family Rs.50,000/- per year to these families on this account for 50 years, for 17415 families will be Rs. 4353 lakh.
4	Economic benefits due to of direct and indirect employment due to the project.	a) Employment generated during construction period. Generally, in construction project, ratio of labour component cost to material component cost is 30:70. The total cost of the project is 12959.95 Lakhs labour employment will be about 30% of Rs.3382.60 Lakhs. The employment potential generated assuming the labour wages of Rs. 80/day (average) in monitory terms the employment potential will be 80 Lakhs 30% x 3382.6 = 1014.78 Lakhs b) After completion of the project it has been assessed from the statistics available for the irrigation project in operation that a labour potential of 73 mandays/Ha. year is generated perennially due to employment in the fields and in agro based industries in case of this project the irrigable command area is 994 Ha. Assuming wages of Rs. 280/- per day the employment potential that will be created during 50 years. 280 x 994 x 50 = 1391 Lakhs c) Drinking water Benefits (As per approved First administrative approval estimate) for 5.2272 M.cum x 0.232 x 10 = 12.12 Lakhs per year x 50 Years = Rs.606.35 Lakhs
5	Economic benefits due to Compensatory afforestation.	213.45 Lakhs

Cost-Benefit Analysis

Kareghat M.I. Tank Project

Calculations of Benefit Cost Ratio

Total Cost (as per Table-B calculation) = Rs. 2133.106 Lakhs

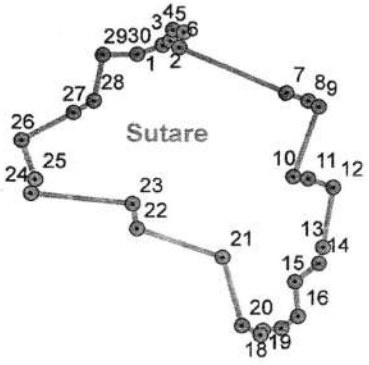
Total Benefits (as per Table-C calculation) = Rs. 12210.77

Hence, Benefit/Cost Ratio = 5.724

Executive Engineer
Nandurbar Irrigation Project
Divisional Unit Nandurbar

(Krishna B. Bhavar)
Deputy Conservator Of Forest
Nandurbar Forest Division, Nandurbar

DGPS Coordinates of Compensatory Afforestation Sites at Village Sutare & Satarpada, Dhule District



Village:- Sutare		
S.No.	Latitude	Longitude
1	21°4'46.715" N	74°2' 41.124" E
2	21°4'47.922" N	74°2' 44.503" E
3	21°4'48.550" N	74°2' 45.517" E
4	21°4'50.055" N	74°2' 45.860" E
5	21°4'49.718" N	74°2' 47.284" E
6	21°4'47.633" N	74°2' 46.676" E
7	21°4'41.399" N	74°3' 0.739" E
8	21°4'40.319" N	74°3' 3.685" E
9	21°4'39.536" N	74°3' 5.076" E
10	21°4'29.986" N	74°3' 1.734" E
11	21°4'29.674" N	74°3' 3.717" E
12	21°4'28.539" N	74°3' 7.054" E
13	21°4'20.357" N	74°3' 5.696" E
14	21°4'18.136" N	74°3' 5.214" E
15	21°4'15.626" N	74°3' 2.027" E
16	21°4'10.895" N	74°3' 2.462" E
17	21°4'9.302" N	74°3' 0.241" E
18	21°4'8.960" N	74°2' 57.844" E
19	21°4'8.434" N	74°2' 57.488" E
20	21°4'9.647" N	74°2' 55.041" E
21	21°4'19.069" N	74°2' 52.475" E
22	21°4'22.930" N	74°2' 41.200" E
23	21°4'26.328" N	74°2' 40.582" E
24	21°4'27.756" N	74°2' 27.212" E
25	21°4'29.626" N	74°2' 27.751" E
26	21°4'34.936" N	74°2' 25.917" E
27	21°4'38.798" N	74°2' 32.676" E
28	21°4'40.391" N	74°2' 35.379" E
29	21°4'46.619" N	74°2' 36.538" E
30	21°4'46.715" N	74°2' 41.124" E

(Krishna B. Bhavar)
Deputy Conservator Of Forest
Nandurbar Forest Division, Nandurbar

Village:- Satarpada		
S.No.	Latitude	Longitude
1	21° 3' 46.293" N	74° 6' 46.426"E
2	21° 3' 48.146"N	74° 6' 45.130" E
3	21° 3' 47.385" N	74° 7' 2.349"E
4	21° 3' 42.721" N	74° 6' 59.335" E
5	21° 3' 42.719" N	74° 6' 57.424" E
6	21° 3' 37.583" N	74° 6' 51.987"E
7	21° 3' 36.895"N	74° 6' 50.210" E
8	21° 3' 29.596"N	74° 6' 46.539" E
9	21° 3' 26.165"N	74° 6' 46.997" E
10	21° 3' 25.417"N	74° 6' 45.097" E
11	21° 3' 28.170" N	74° 6' 44.677" E
12	21° 3' 36.069"N	74° 6' 44.567" E
13	21° 3' 39.849"N	74° 6' 45.689" E
14	21° 3' 46.293"N	74° 6' 46.426" E

OPEN SERIES MAP

No. F43O4

Scale 1:50,000

F43N15 (46K/15) 1 TAPI GUJARAT	F43O3 (46K/2) 5 Nandurbar MAHARASHTRA	F43O7 (46K/7)
F43N16 (46K/16)	F43O4 (46K/6)	F43O8 (46K/5) 4 Dhule MAHARASHTRA
F43T13 (46M/13) 2 The Dangs GUJARAT	F43U1 (46L/1) Nilgiri MAHARASHTRA	F43U5 (46L/5)

3 Surgana

भारतीय सर्वेक्षण विभाग SURVEY OF INDIA

1st Edition 2012. Price : ₹ 77 /-

CONVENTIONAL SYMBOLS

REFERENCE

NOTES :

COMPILATION INDEX

Projection – UTM Datum – WGS 84

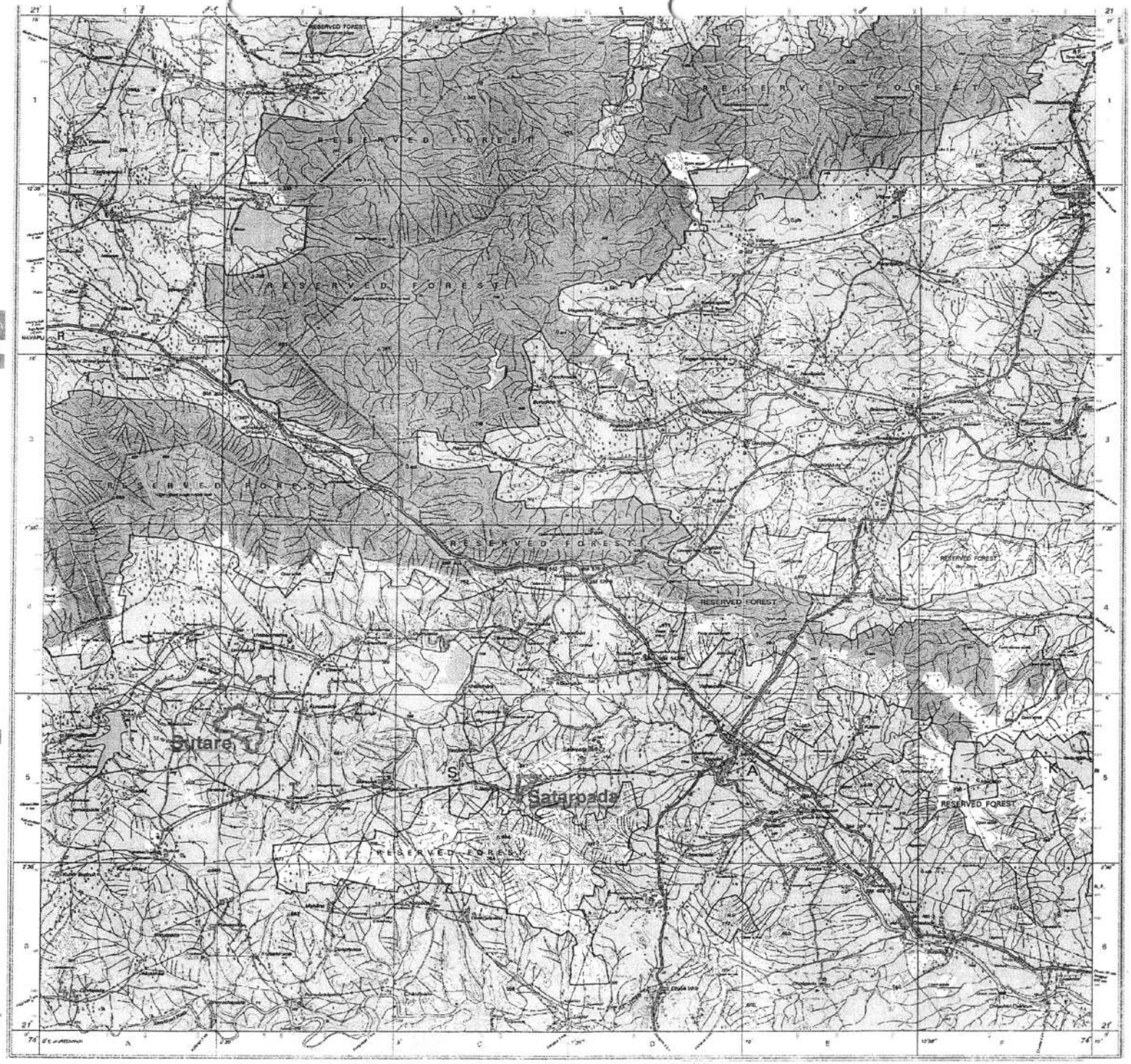
Magnetic Variation from True North varies about 1° West in 2012

1:50,000

Director

Survey of India, Pune.

(Krishna B Bhavar)
Deputy Conservator of Forest
Nandurbar Forest Division, Nandurbar



OFFICE OF THE PRINCIPALCHIEF CONSERVATOR OF FORESTS
(HEAD OF FOREST FORCE) , MAHARASHTRA STATE, NAGPUR
ADDITIONAL PRINCIPAL CHIEF CONSERVATOR OF FORESTS AND NODAL OFFICER, MAHARASHTRA STATE, NAGPUR
Frist Floor, 'B' Wing, Van Bhavan , Civil Lines , Nagpur – 440001Tel no. (0712) 2530166, 2556916 Fax no. (0712) 2550675 E-Mailapccfnodal@mahaforest.gov.in

No. Desk - 17/Nodal /DHULE /RS-I /ID-12942(25)/ /2023-24

Nagpur – 440 001 , Date : /05/2023

To,

Principal Secretary (Forest)
Revenue and Forest Department,
Mantralya,, Mumbai – 32.

Sub.: Request to Approve the Catchment Area Treatment (CAT) Plan of Kareghat Minor Irrigation Tank at Kareghat, Tal,Nawapur, District Nandurbar in State of Maharashtra Under Forest Division ofNandurbar Forest circle Dhule.

Sir,

In continuation to this office letter of even number dated 05.04.2023, Vide which CAT plan of kareghat Minor Irrigation Tank Tal, Nawapur, Diatrict Nandurbar was submitted to the MoEF&CC, New Delhi from where it has been informed that the CAT plan is required to be approved by the competent authority as mentioned in the para 9.2(vi) of the Handbook of guidelines dated 28.03.2019.

2. Therefore, the Catchment Area Treatment Plan (CAT) of kareghat Minor Irrigation Tank Tal, Nawapur, Diatrict Nandurbar falling under jurisdiction of Nandurbar Forest Division of Dhule

Forest Circle has beenprepared by the user agency for an amount of Rs. 120.34 Lakh and has been approved by the Forest Department.

3. The User Agency will deposit the entire amount of Rs.120.34 Lakh in the CAMPA account through online portal.

4. The CAT Plan has been prepared as per guidelines, instructions and directions of Govt. of India and Govt. of Maharashtra.

It is, therefore, requested that the CAT plan document approved by the Forest Department may kindly be transmitted to MoEF&CC,GoI for information and further necessary action. Two copies of the approved CAT plan document are sent herewith please.

Encls : As above

Yours faithfully,

(Naresh Zurmure)
Addl. Principal Chief Conservator of Forests& Nodal Officer

OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (HEAD OF FOREST FORCE), MAHARASHTRA STATE

ADDITIONAL PRINCIPAL CHIEF CONSERVATOR OF FORESTS AND NODAL OFFICER,
First Floor, 'B' Wing, Van Bhavan, Civil Lines, Nagpur-440001.
Tel no. (0712) 2530166, 2556916, Fax no. (0712) 2550675 E-mail- apccfnodal@mahaforest.gov.in

No. Desk-17/Nodal/Dhule/RS-I/ID-12942(25)/574 /2023-24
Nagpur – 440 001, Date : 24 /05/2023

To,
Principal Secretary (Forests),
Revenue and Forest Department,
Mantralya, Mumbai-32.

Sub:- Diversion of 73.94 ha. forest land for construction of Kareghat Minor Irrigation Tank at Kareghat, Tal. Nawapur, District Nandurbar in the State of Maharashtra (Online No. FP/MH/IRRIG/61238/2020)-regarding.

Ref 1. Government of India, Ministry of Environment Forests & Climate Change, Indira Paryavaran Bhavan, New Delhi letter No. 8-28/2022/FC, dated 02/05/2023.
2. Conservator of Forests (T.), Dhule letter No.D-5/Nodal/C.R./44,Dt.17/05/2023.

The Government of India, vide letter under ref. 1 has sought approved CAT plan by the Competent authority as mentioned in the Para 9.2 (vi) of the Handbook of guidelines dated 28/03/2019. Accordingly, the Conservator of Forests (T), Dhule has submitted the copy of the same to this office.

This report is self explanatory and this office agrees with the said compliance. The copy of the same is enclosed herewith for further needful action.

In view of the above facts, it is requested that Government of India may kindly be moved for approval order under section-2 of the Forest (Conservation) Act, 1980 as early as possible,

Encl:- As above

24/5/23

(Naresh Zurmure)
Addl. Principal Chief Conservator of Forests
& Nodal Officer

Copy to The Conservator of forests (T), Dhule for information.
Copy to The Deputy Conservator of forests, Nandurbar Forest Division, Nandurbar for information.
Copy to The Executive Engineer, Nandurbar Medium Project Divisional Unit, Nandurbar for information.

Dhule Circle/Id-12942/73.94 ha.

Annexure-II

(5) (2)

(for Authorized Use only)

TAPI IRRIGATION DEVELOPMENT CORPORATION, JALGAON
(A Government of Maharashtra Undertaking)

Kareghat Minor Project
Taluka :- Navapur, Dist:- Dhule

Catchment Area Treatment Plan
(CAT Plan)

TAPI IRRIGATION DEVELOPMENT CORPORATION, JALGAON

DHULE IRRIGATION PROJECT CIRCLE, DHULE

NANDURBAR MEDIUM PROJECT DIVISIONAL UNIT , NANDURBAR

Kareghat Minor Project

Taluka :- Navapur, Dist:- Dhule

(3/6)

Catchment Area Treatment Plan.

Brief Note

1.0 Introduction

The Kareghat Minor project is proposed to be constructed across Supadi Nalla River near village Kareghat, Tal- Navapur , & Dist- Dhule.

The project envisages construction of earthen dam having length of 327.60 m including spillway of length 37.30 m. with maximum height of dam in nalla portion is 22.91 m. Length of broad creasted weir is of 37.30 m.

2.0 Scope of Project

The project comprises 7.35 Km of Left bank canal & 2.7 Km. of Right bank canal. Left Bank Canal having discharge of 0.519 Cumec.and potential is 679 Ha. CCA,, Right Bank Canal having discharge of 0.0611 Cumec. and potential is 80 Ha. CCA,, Irrigation Potential. Thus the ultimate irrigation potential of the project is 759 Ha.of District Nandurbar.

At present the cost of the total project including centage charges is of Rs. 5764.35 Lacs.

3.00 Approval and Clearances

3.1 Approvals of Planning Commission -

1) First approval Date -
2) Second approval Date -

3.2 Forest Clearance

Submitted for approval

3.3 Environment Clearance –

Submitted for approval

Catchment Area.

The prime objective of the CAT works should be minimizing the sedimentation of reservoir and ecosystem development in Catchment Area.The total catchment area of Kareghat Project up to the proposed site is 11.143 sq. km. Since the catchment is not intercepted by any other major or medium water resource project on upstream, the Catchment Area Treatment Plan shall be formulated for entire catchment (11.143 sq. km).(1114.30 Ha.)

For calculating the silt load silt factor is considered as 0.75 Acre-feet/Year/Sq. mile. At the end of life span the total silt accumulate in the project will be 0.2613 Mcum. Efforts are being taken to reduce the silt load as minimum as possible by treating the catchment area.

Catchment Area Treatment Plan

Objectives:-

Integrated watershed management plan minimizes the sedimentation of reservoir. The main aim of the Catchment Area Treatment Plan is to rejuvenate various potential and degraded ecosystems in the catchment area for longevity of the reservoir storage capacity. For this purpose, the action plan has been prepared with the following objectives:

1 To facilitate the hydrological functioning of the catchment and to augment the quality of water of the river and its tributaries.

2 Conservation of soil cover and to arrest the soil erosion, floods and siltation of the river along with its tributaries and consequent reduction of siltation in the reservoir of the project.

3 Demarcation of the priority of watersheds for treatment based on soil erosion intensity in the catchment area.

4 Rehabilitation of degraded forest areas through afforestation and facilitating natural regeneration of plants.

5 Mitigation of landslide, landslip and rock falls.

6 Soil conservation through biological and engineering measures to reduce sediment load in river and tributaries, incidentally improving the quality of water.

7 Ecosystem conservation resulting from increased vegetal cover and water retaining properties of soil.

8 To meet the fuel and fodder requirements of local people.

9 Promotion of non-conventional energy device to reduce pressure on forest.

10 Employment generation through community participation and conservation.

ACTIVITIES TO BE UNDERTAKEN

For undertaking soil conservation measures in the Kareghat Project catchment area up to barrage site various indirect or preventive measures like biological measures and direct or remedial measures like engineering measures are to be taken.

Preventive Biological Measures

It is always better to undertake preventive measures than to mitigate the factors that ultimately lead to soil erosion. Such preventive measures will indirectly help to conserve soil in the long run, keeping in view the importance of integrating eco-restoration strategy with socio-economic needs of the local community wherein both ecology and economics are developed. The preventive measures that are suggested for the project area have been discussed below.

a) Afforestation

In the upland region like this project area, the trees and vegetation cover play an important role in the conservation of soil and ecology. Afforestation program would be taken up in

such forest areas that contain large patches of barren grassy slopes and are generally devoid of trees. In critically degraded areas, plantation of locally useful, diverse and indigenous plant species such as Alnus nepalensis, Alangium chinense, Altingia excelsa, Bischofia javanica, Pterospermum acerifolium, etc. would be undertaken. Afforestation measures would be taken up under catchment area treatment plan on 11.143 Sq.Km.(1114.30 Ha.) ha.

Afforestation Programme

Different types of plantations would be undertaken under afforestation programme according to the methodology described below. The plantations that would be undertaken in the forest (scrub/degraded forest) would have a planting density of 1600 plants per ha and vegetative hedge in contour trenches. Contour planting conserves soil and enhances moisture regime and adverse effect of surface run off of rain water is reduced considerably. Trenches, pits and plants along the contour reduce velocity of water, increase soil moisture and facilitate seepage of water in soil and reduce soil loss resulting in better growth of plants. Hence, soil working and planting along contours would be strictly followed in the project. In the afforestation areas, the digging of trenches and pits would be along the contour. About 20 to 30 m long contour trenches would be dug leaving a space of 50 cm (septa) between the two consecutive trenches. Soil would be dug on the lower side of the trench and after removing pebbles and weeds, the trench would be half refilled with soil and remaining soil would be collected to form berm on lower side of trench. On the berm, seeds of shrubs/hedges like Arenga saccharifera, Calamus erectus, Bambusa tulda, Debregeasia longifolia, Mussaenda roxburghii, etc. would be sown to raise vegetative barrier. The size of pits would be 45 cm3 . The contour trenches would be at an interval of 5 m. For digging 1600 pits per ha, pits would be dug 15 cm uphill side from the contour trenches. The spacing of pits along contour trench will not be closer than 1.25 m. In afforestation areas soil working would be started in October-November and would be completed by March. It is important that filling of pits and half filling of trenches is completed before the onset of monsoon, otherwise dug soil will be washed away by rains leaving only stones and pebbles near the pit. Planting would be completed before the monsoon period is over. With a view to conserve not only soil and water but also for fuelwood production, it is important to raise the vegetative barrier of hedge plants. The seeds of hedges like Bambusa, Debregeasia, Melocalamus, Pinanga, etc. will be sown in contour trenches before the onset of monsoon. When the water of surface run-off reaches the line of hedges, its speed is checked and silt is stopped by the hedge plants and only percolated water passes down slowly. Hedges spread and grow well in the silt left behind and form a natural terrace. The plants planted in the pits near contour trenches get more moisture and grow fast.

Choice of Species

The species for plantations would be selected after considering altitude, aspect, biotic pressures, soil depth, moisture, etc. As there is pressure of cattle grazing, non-fodder/ fuelwood species would also be planted in suitable proportion in between the fodder species. The tree species that would be planted under this programme are: Actinodaphne obovata, Altingia excelsa (Jutli), Castanopsis indica (Hingori), Cinnamomum tamala (Tej Pata), Ficus benjamina, Gynocardia odorata, Toona ciliata (Poma), etc. There are many shrubby plant species which are suitable for fodder/ fuelwood plantations, which are: Bambusa tulda, B. pallida, Bauhinia variegata, Ficus auriculata and Morus alba. The important legumes and grasses that would be planted are Chrysopogon gryllus, Lolium perenne, Pennisetum purpureum, Thysanolaena latifolia and Themeda arundinacea among grasses and White clover (Trifolium repens), Red clover (Trifolium pratense), Lucerene (Medicago sativa), Vetch (Vicia villosa), and Caucasian clover (Trifolum ambiguum) among legumes. The plant species suitable for avenue and ornamental purposes are: Altsonia scholaris, Bauhinia variegata, Cassia fistula, Delonix regia, Erythrina stricta, Exbuclandia poulnea, Hibisicus rosa-sinensis and Polyalthia longifolia.

Fencing

Stone wall 120 cm high and 45 cm wide or 4 strand barbed wire fencing would be erected during first year along with soil working. The cooperation of local villagers would be sought for the success of the plantation programmes.

Weeding and Mulching

Weeding, hoeing and mulching would be carried out during October-November. Weeding and loosening of soil by hoeing break the capillary action in soil and thus reduce the moisture loss. Mulching reduces evaporation and conserves soil moisture and adds humus to soil. Cut and uprooted weeds and grasses used as mulching material would be spread around the plant.

Watch and Ward and Fire Protection

Protection of plantation is the greatest challenge as some inhabitants and their livestock may damage the plantation before it is established. Hence the protection of plantation particularly in the juvenile stage is of paramount importance and watchmen/ guards would be engaged from the nearby villages for the required job. Besides the above, other appropriate measures would be adopted to ward off these potential threats.

b) Assisted Natural regeneration in existing forest

In some of the forest areas, conditions are conducive to natural regeneration provided that some sort of assistance is provided. Such areas shall be taken up under this component. The areas shall be closed to exclude biotic interference. Forest floor will be cleared of slash; debris and felling refuse to afford a clean seedbed to the falling seed. At certain places some soil raking may also have to be done to facilitate germination of seeds. Where natural

regeneration is found deficient, it will be supplemented by artificial planting. Patch sowing in suitable areas may also be done. Bush cutting & cleaning operations are done depending on necessity. Up to 800 plants or patches per hectare will be planted /sown to hasten the process of regeneration in the area uniformly. An outlay of Rs.11.49 lakhs @ Rs 14,612/- per ha (see Annexure II) has been made to cover 150 Ha.

c) Grazing Land/Pasture Improvement

The livestock owned by the local communities exert significant pressure on the natural habitats. In order to improve the grazing areas/pastures and to make these sustainable, the degraded areas, particularly among community lands will be taken up for treatment under silvi-pastoral model. An outlay of Rs.990600/- lakhs @ Rs.24,765/- per ha (Annexure II) has been earmarked for this purpose and it will cover about 40.00 ha of land for development at a cost of Rs.13.13 lakhs and its maintenance will cost Rs.0.90 lakhs for four years.

Preventive Treatment Measures: Engineering Measures

Gully erosion is one of the concerned soil erosion in the slope and hilly areas. The gullies would be treated with the help of engineering/ mechanical as well as vegetative methods. Check dams would be constructed in some of the areas to promote growth of vegetation that will consequently lead to the stabilization of the slopes/area and prevention of further deepening of gullies and erosion. For controlling the gullies, the erosive velocities are reduced by flattening out the steep gradient of the gully. This is achieved by constructing a series of checks which transform the longitudinal gradient into a series of steps with low risers and long flat treads. Different types of check dams would be required for different conditions comprising different materials depending upon the site conditions and the easy availability of material at local level.

In addition to the vegetative measures used for stabilization of gullies, temporary or permanent mechanical measures will be used as supplementary measures to prevent the washing away of young plantations by large volume of runoff. The gullies get stabilized over a period of time with the establishment and growth of vegetation cover. With the passage of time mechanical structures weaken and vegetative measures get strengthened.

For engineering measures following types of checkdams are suggested.

a) Brushwood checkdams

The main advantage of brushwood checkdams is that they are quick and easy to construct and are inexpensive as they are constructed by using readily available materials at the site. Brushwood checkdams, small branches preferably of coppice species are fixed in two parallel rows across the gully or nala and packed with brushwood between the rows of these vertical stakes. The vertical stakes are tied down

with wires or fastened with sticks across the top. The important consideration in erecting brushwood checkdams is to pack the brushwood as tightly as possible and to secure it firmly. This type of checkdam is generally constructed over small gullies or at the starting stretch of gullies. In all, 118 brushwood checkdams/ vegetative spurs would be constructed to check gully erosion, stream bank protection and slope stabilization works

b) Dry Rubble Stone Masonry (DRSM) checkdams

The site where DRSM checkdams are to be constructed is cleared and the sides are sloped 1:1. The bed of gully is excavated for foundation to a uniform depth of 0.45 m to 0.60 m and dry stones are packed from that level. Over the foundation, DRSM super structure of checkdam is constructed. The stones are dressed and properly set in with wedges and chips. The width of checkdam at the base should be approximately equal to maximum height and successive courses are narrower so the section is roughly a trapezium. It is common to find upstream face of checkdams vertical with all slopes on the downstream face but while there is sound engineering reason for this in case of large checkdams, it is not of any use in small gully control dams. In the centre of the dam portion sufficient waterway is allowed to discharge the maximum run off. The dry stone work should go up to 0.30m to 0.60m in the stable portion of the gully side to prevent end-cutting. Sufficient apron is provided to prevent scouring of the structure. The thickness of the apron packing would be about 0.45 m and gully sides above the apron have to be protected with packing to a height of at least 0.30 m above the anticipated maximum water level to prevent side scour being formed by the falling water. For gully control measures, 145 DRSM checkdams would be constructed.

c) Slope modification by Stepping/ Bench Terracing

Bench terracing is one of the most popular mechanical soil conservation practices adopted by farmers in India and many other countries. It is constructed in the form of step like fields along contours by half cutting and half filling and would result in the conversion of the original slope into leveled fields. Thus, hazards of erosion are eliminated and manure and fertilizers applied are retained in the leveled fields. The sloping fields in the valley need to be bench terraced by cutting and filling with the latter supported by retaining stone walls. While making bench terraces, care will be taken not to disturb the top soil by spreading earth from the lower terraces to higher terraces. The vertical intervals between the terraces will not be more than 1.5 m and cutting depth would be kept at 50 cm. The minimum average width of the terrace would be 4 to 5 m to enable the usage of prolong hinge. The shoulder bunds of 30 x 15 cm would also be provided. The excess water from the terraces will be drained off by staggered channels. An area of 209.29 ha will be covered under this plan.

d) **Landslide Control**

Nandurbar Medium Project,

Divisional Unit,Nandurbar

(7)
(16)

Component-wise Physical and Financial Programme of catchment area treatment works. (CAT)

Sr. No.	Item of work	Unit	Qty	Rate/Unit	Amount (Rs.)
A.	Engineering Measures				
1	**Gully Control**				
	a) Wire Crate Check dams	Ha.	25	52663.00	1316575.00
	b) Loose Boulder Structures (LBS)	Ha.	60	17193.00	1031580.00
	c) Continous Contour Treching (CCT) Bunding	Ha.	75	24624.00	1846800.00
2	**Stepping / Bench terracing**	Ha.	100	10620.00	1062000.00
	Total (1+2)				**5256955.00**
	Add 5 % for maintainance of structure.				262847.75
	Sub-Total (A)				**5519802.75**
B.	**Biological Measures**				
1	Afforestation				
	i) Creation	Ha.	85	46382.00	3942470.00
	ii) Maintenance 2 %				78849.40
2	Assisted natural regeneration in existing forest				
	i) Creation	Ha.	90	14607.00	1314630.00
	ii) Maintenance 2 %				26292.60
3	Grazing/Pasture Development	Ha.			
	i) Creation	Ha.	40	23574.00	942960.00
	ii) Maintenance 2 %				18859.20
	Sub-Total (B)	Ha.			**6324061.20**
C	Monitoring and evaluation 1%.	Ha.			63240.612
D	Contingency @ 2%	Ha.			126481.224
	Total Cost Rs.		**475.00**		**12033585.79**
	Say Rs. In Lakh		**=**	**120.34**	**Lakh**

Executive Engineer
Nandurbar Medium Project
Divisional Unit
Nandurbar.

(Krishna B Bhavari)
Deputy Conservator of Forest
Nandurbar Forest Division, Nandurbar

Conservator of Forests (T)
DHULE.

Nandurbar Medium Project,

Divisional Unit,Nandurbar

Yearwise Physical and Financial Programme of Catchment Area Treatment Plan.

(Amount in Rs.)

Sr. No.	Item of work	Unit	Total Target		1st Year		2nd year		3rd year	
			Phy	Fin.	Phy	Fin.	Phy	Fin	Phy	Fin
A.	**Engineering Measures**									
1	**Gully Control**									
	a) Wire Crate Check dams	Ha.	25	1316575	0.00	0.00	13.00	684619.00	12.00	631956.00
	b) Loose Boulder Structures (LBS)	Ha.	60	1031580	15.00	257895.00	25.00	429825.00	20.00	343860.00
	c) Continous Contour Treching (CCT) Bunding	Ha.	75	1846800	50.00	1231200.00	25.00	615600.00	0.00	0.00
2	**Stepping / Bench terracing**	Ha.	100	1062000	30.00	318600.00	40.00	424800.00	30.00	318600.00
	Total (1+2)			5256955		**1807695.00**		**2154844.00**		**1294416.00**
	Add 5 % for maintainance of structure.			262847.75		90384.75		107742.20		64720.80
	Sub-Total (A)			**5519802.75**		**1898079.75**		**2262586.20**		**1359136.80**
B.	**Biological Measures**									
1	Afforestation									
	i) Creation	Ha.	85	3942470	50.00	2319100.00	35.00	1623370.00	0.00	0.00
	ii) Maintenance 2 %			78849.4		46382.00		32467.40		0.00
2	Assisted natural regeneration in existing forest									
	i) Creation	Ha.	90	1314630	60.00	876420.00	30.00	438210.00	0.00	0.00
	ii) Maintenance 2 %			26292.6		17528.40		8764.20		0.00
3	Grazing/Pasture Development	Ha.								
	i) Creation	Ha.	40	942960	20.00	471480.00	10.00	235740.00	10.00	235740.00
	ii) Maintenance 2 %			18859.2		9429.60		4714.80		4714.80
	Sub-Total (B)	Ha.		**6324061.2**		**3740340.00**		**2343266.40**		**240454.80**
C	Monitoring and evaluation 1%	Ha.		63240.612		37403.40		23432.66		2404.55
D	Contingency @ 2%			126481.224		74806.80		46865.33		4809.10
	Total Cost Rs.			**12033585.79**	**225.00**	**5750629.95**	**178.00**	**4676150.59**	**72.00**	**1606805.24**

Executive Engineer
Nandurbar Medium Project
Divisional Unit
Nandurbar.

Conservator of Forests (T)
DHULE.

(Krishna.B Bhavar)
Deputy Conservator of Forest
Nandurbar Medium Project Divisional Unit, Nandurbar

Nandurbar Medium Project,
Divisional Unit,Nandurbar

(9)
(12)

Estimate Per Ha.

Construction of Contineous contour trenching (CCT)

Sr. No.	Item in Brief	Man days	Rate Per Manday	Wages Rs.	Material Rs.	Total Rs. (5+6)
1	*2*	*3*	*4*	*5*	*6*	*7*
1	Excavation	1	258	258.00	100.00	358.00
2	Line out 0.25 Mandays for 100 m length .in 1 Ha. 1000 m CCT is to be excavated.	2.5	258	645.00	12.00	657.00
3	Excavation of CCT of size 0.60 m,x 0.30 m.deep and earthen embankment on the downstream side of CCT of 0.30 m. height.	90	258	23220.00	30.00	23250.00
4	Measurment and numbering	1.33	258	343.14	16.00	359.14
	Total Amount per Ha.				**Rs.**	**24624.14**
	Total Amount per Ha.				**Rs.**	**24624.00**

Executive Engineer
Nandurbar Medium Project
Divisional Unit
Nandurbar.

Nandurbar Medium Project,
Divisional Unit,Nandurbar

(13)

ESTIMATE

Wire Crate Check Dam

Sr. No.	Item in Brief	Qty	Unit	Rate	Amount
1	(a) Excavation in foundation with 50% soft rock & 50% E & B involving peak and jumper work in 6.60 m x 2.30 m x 0.50 m = 7.59 cubic meter	7.59	Cum.	224.88	1706.8392
2	(b) Collection of boulders				
	Foundation Step - 6.0 x 2.0 x 1.0 m = 12 cubic meters I- Step - 6.0 m x 1.9m x 1.0m = 11.40 cubic meter II- Step – 6.0 m x 1.8m x 0.8 m = 8.64 cubic meter Total requirement of boulder = 32.04 x 1.1 = 35.24 cubic meter	35.24	Cum.	175.25	6175.81
3	(c) Carriage of boulder manually average lead 1 Km.	32.04	Cum.	561.00	17974.44
4	(d) Weaving of wire netting of GI wire mesh				
	size 15 cm x 15 cm	113.2	Sqm.	21.75	2462.1
	Foundation Step-2(6x2+6x1+2x1) = 40 m2				
	I- Step-2(6x1.9+6x1+2x1) = 38.8 m2				
	II- Step- 2(6x1.8 + 6x0.8 + 2x0.8) = 34.4 m2				
	Total = 113.2 m2				
5	(e) Filling of boulder and hand packing in wire	32.04	Cum	144.25	4621.77
	crates				
6	(f) Cost of GI wire	2.25	Quintal	8000.00	18000
7	(g) Carriage of GI wire manually to an average	2.25	Quintal	83.50	187.875
	lead of 1 km				
	Total Rs.				**51128.8342**
8	Add 3% Contingencies				1533.86503
	Grand Total Rs.				**52662.70**
	Say Rs. 52663/ Ha.				**52663.00**

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(14)

Estimate Per Ha.

Construction of Loose Boulder Structure. (LBS)

Sr. No.	Item in Brief	Man days	Labour Rate per manday	Total Wages Rs.	Material cost Rs.	Total Rs.
1	Survey and Demarcation	1	158.00	258.00	100.00	358.00
2	Collecting boulders from 30.00 m radial area and making boulder structure and rock toe including filling voids by stone chips O.87 Mandays per Cum. For 75 Cum.	65.25	158.00	16834.50	0.00	16834.50
	Total Amount per Ha.				**Rs.**	**17192.50**
	Say Rs,				**Rs.**	**17193.00**

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(17)
(15)

Grazing / Pasture Development in existing forest

A	Execution				
I	Wage(Labour) Component				
Sr.No.	Item in Brief	Quantity	Unit	Rate	Amount
1	Survey of plantation area and preparation of maps	1	Ha.	68.21	68.21
2	Cleaning and un-saleable thinning (non commercial) in regeneration	1	Ha.	68.21	68.21
3	Bush Cutting/ Climber Cutting	1	Ha.	65.21	65.21
4	Digging of pits 45 cm3	700	Nos.	9.36	6552.00
5	Filling of pits 45 cm3	700	Nos.	4.82	3375.96
6	Planting of plants in pits	700	Nos.	0.87	610.75
7	Carriage of Plants	700	Nos.	0.54	378.00
	Preparation of patches for grass sowing	250	Nos.	2.67	667.13
	Sowing of patches for grass sowing	250	Nos.	0.49	121.75
8	Moisture retention intervention	1	Plants	1500.00	1500.00
	Collection of grass seeds				1400.00
9	Protection cost	1		800.00	800.00
	Sub-Total (a)				**15607.22**
11	Add 10.00% increase				1420.70
B	**Cost of Material Compost (B)**				4000.00
	1st weeding during (July/August)	1000	per 500 san	850.00	1700.00
	2nd weeding during (Aug/Sep)	1500	per 1500 san	850.00	850.00
	Sub-Total (B)				**23577.92**
	Total per Hectare cost (A+B)				**23577.92**
	Say Rs.				**23574/-**

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Divisional Unit,Nandurbar

(13) (16)

Afforestation cost per Hectare of Plantation.

A	Execution				
I	Wage(Labour) Component				
Sr.No.	Item in Brief	Quantity	Unit	Rate	Amount
1	Survey of plantation area and preparation of maps	L.S.	-	68.21	68.21
2	Climbers cutting, removal of brushwood @	1	Ha.	292.00	292.00
3	Construction of inspections path	180	RMT	5.05	909.00
4	Fencing of area of barbed wire 4 strands horizontal and 2 strands diagonal..	400	RMT	27.00	10800.00
5	Digging of pits 45 cm3	700	Nos.	6.38	4467.40
6	Digging of pits 30 cm3	400	Nos.	3.18	1272.80
7	Filling of pits 45 cm3	700	Nos.	1.82	1275.96
8	Filling of pits 30 cm3	400	Nos.	1.57	628.84
9	Plantation of plants in pits 1100 nos	1100	Nos.	1.41	1549.35
10	Cost of raising seedlings in nursery	1100	Plants	3.00	3300.00
	Sub-Total (a)				24563.56
11	Add 18.93% increase 4649.99				4649.88
	Total (a)				**29213.44**
II	**II. Cost of material**				
	i) Cost of materials for raising saplings	1100	Plants	4.00	4400.00
	ii) Cost of compost Lump sum 2000.00	L.S.	-	-	2000.00
	iii) Filling of polybag and maintenance Lump sum	L.S.	-	-	200.00
	Total (b)				**6600.00**

Sr.No.	Item in Brief	Quantity	Unit	Rate	Amount
III	III. Maintenance of saplings planted saplings during execution period				
11	Cost of protection (Lump sum)	L.S.	-	-	500.00
12	1st weeding during (July/August)	1000	per 500 san	850.00	1700.00
13	2nd weeding during (Aug/Sep)	1500	per 1500 san	850.00	850.00
	Total				3050.00
	Add 18.93% increase				577.37
	Sub-Total (C)				3627.37
	Add escalation for 3 years (2022 to 2024) @ 7.5%/year				816.16
	Total (C)				4443.52
	Total of Execution Part (a+b+c)				40256.96
B.	Maintenance cost.				5000.00
	Adding escalation for 3 years (2014\\22 to 2024)				1125.00
	Total (B)				6125.00
	Grand Total per Hectare cost (A+B)				46381.96
	Say Rs.				46382/-

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Divisional Unit,Nandurbar

(15) (18)

Grazing / Pasture Development in existing forest

A	Execution				
I	Wage(Labour) Component				
Sr.No.	Item In Brief	Quantity	Unit	Rate	Amount
1	Survey of plantation area and preparation of maps	1	Ha.	68.21	68.21
2	Cleaning and un-saleable thinning (non commercial) in regeneration	1	Ha.	68.21	68.21
3	Bush Cutting/ Climber Cutting	1	Ha.	65.21	65.21
4	Digging of pits 45 cm3	700	Nos.	9.36	6552.00
5	Filling of pits 45 cm3	700	Nos.	4.82	3375.96
6	Planting of plants in pits	700	Nos.	0.87	610.75
7	Carriage of Plants	700	Nos.	0.54	378.00
	Preparation of patches.for grass sowing	250	Nos.	2.67	667.13
	Sowing of patches.for grass sowing	250	Nos.	0.49	121.75
8	Moisture retention intervention	1	Plants	1500.00	1500.00
	Collection of grass seeds				1400.00
9	Protection cost	1		800.00	800.00
	Sub-Total (a)				**15607.22**
11	Add 10.00% increase				1420.70
B	**Cost of Material Compost (B)**				4000.00
	1st weeding during (July/August)	1000	per 500 san	850.00	1700.00
	2nd weeding during (Aug/Sep)	1500	per 1500 san	850.00	850.00
	Sub-Total (B)				**23577.92**
	Total per Hectare cost (A+B)				**23577.92**
	Say Rs.				**23574/-**

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(16)
(19)

Estimate Per Ha.

Construction of Bench Terracing

Sr. No.	Item in Brief	Man days	Rate Per Manday	Wages Rs.	Material Rs.	Total Rs. (5+6)
1	2	3	4	5	6	7
1	Excavation	40	258	10320.00	300.00	10620.00
	Total Amount per Ha.				Rs.	10620.00
	Total Amount per Ha.				Rs.	10620.00

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(47) (2

Assisted natural regeneration in existing forest

A	Execution				
I	Wage(Labour) Component				
Sr.No.	Item In Brief	Quantity	Unit	Rate	Amount
1	Survey of plantation area and preparation of maps	1	Ha.	66.85	66.85
2	Cleaning and un-saleable thinning (non commercial) in regeneration	1	Ha.	1158.22	1158.22
3	Bush Cutting	1	RMT	57.95	57.95
4	Digging of pits 45 cm3	700	Nos.	6.24	4364.92
7	Filling of pits 45 cm3	700	Nos.	1.79	1250.48
8	Planting of plants in pits	700	Nos.	0.87	610.75
9	Carriage of Plants in polythene bags and nacked root plants at least 4.5 Km.	700	Nos.	0.54	378.00
10	Moisture retention intervention	1	Plants	1500.00	1500.00
	Protection cost	1		800.00	800.00
	Sub-Total (a)				**10187.17**
11	Add 18.93% increase 4649.99				1870.00
	1st weeding during (July/August)	1000	per 500 san	850.00	1700.00
	2nd weeding during (Aug/Sep)	1500	per 1500 san	850.00	850.00
	Total (a)				**14607.17**
	Total per Hectare cost (A)				**14607.17**
	Say Rs.				**14607/-**

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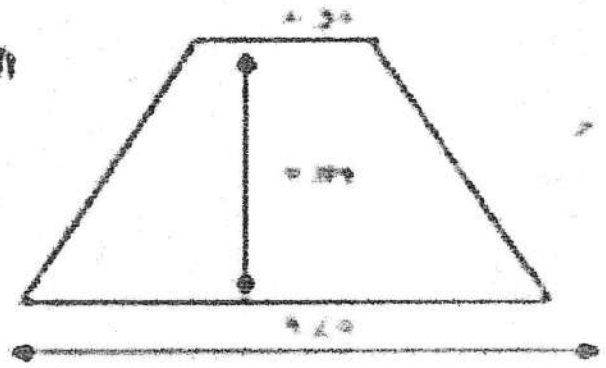
Nandurbar.

२०१

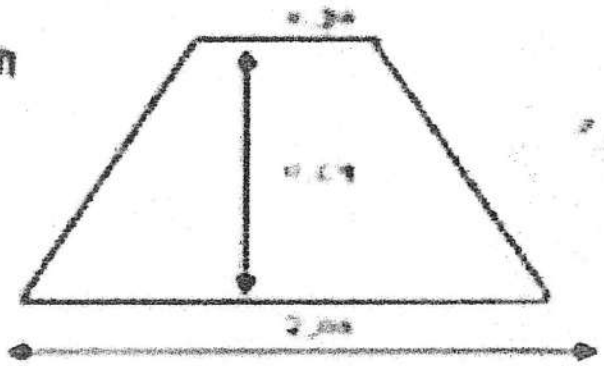
हलकी जमीन - बांधाचा घेट

बांधाचा घेट = ०.८० मीटर



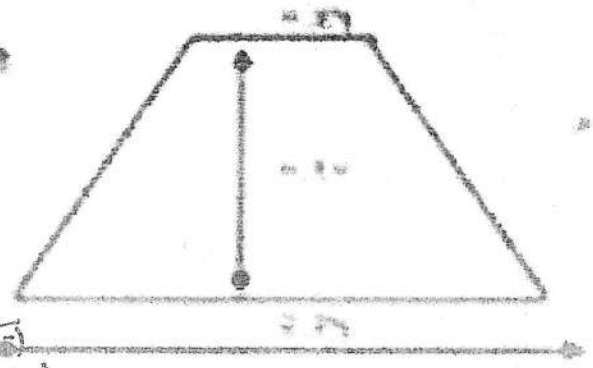
मध्यम जमीन - बांधाचा घेट

बांधाचा घेट = १.०० मीटर



भारी जमीन - बांधाचा घेट

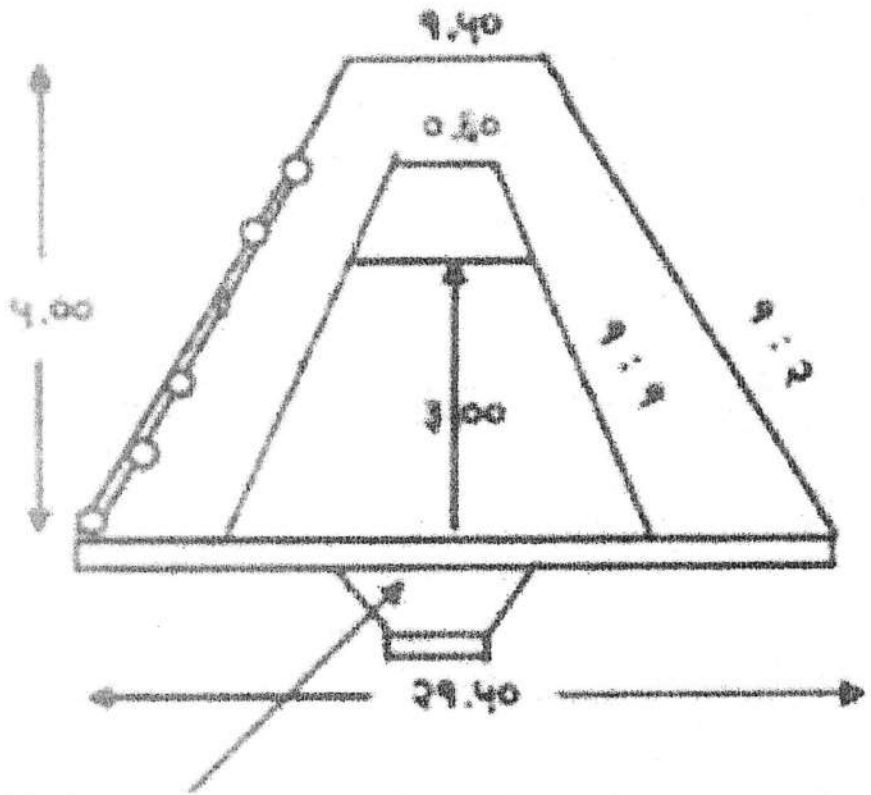
बांधाचा घेट = १.२० मीटर



उपविभागीय अधिकारी
उप-विभागीय वनक्षेत्र क्र. ६
नंदुरबार

(Krishna S. Bhavar)
Deputy Conservator Of Forest
Nandurbar Forest Division, Nandurbar

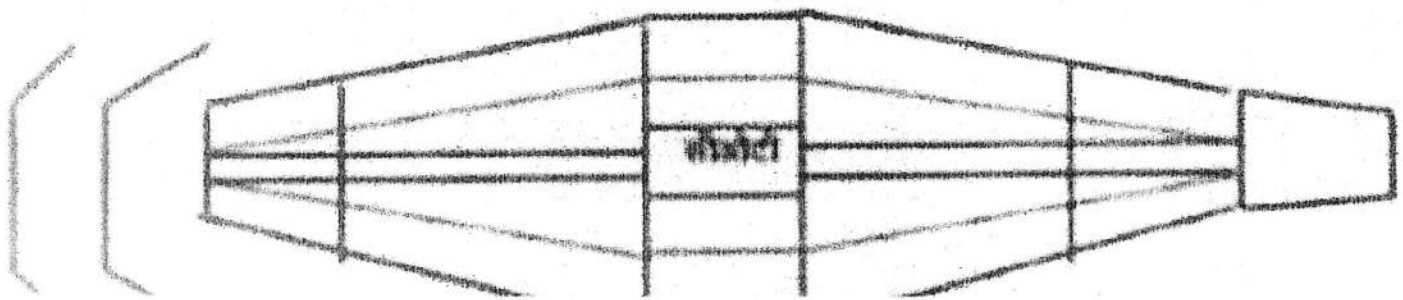
नाला बांधाच्या छेदाचा नकाशा माती नाला



तपशील	पातळी	उंची	रुंदी
बांधाचा माथा -	५०.००	१.००	१.५०
पाणी जाडी -	४९.००	१.००	५.५०
पाणी माठा -	४८.००	३.००	१.५०
बांधापातळी -	४५.००	०	२१.५०
मि. बाप लांबी -	५०	उतार	१:१
अभेदभित लांबी -	४५	उतार	१:१
माथारुंदी मि- बांध	१.५०	अ.भित -	१.००
एकूण उंची -	५.००	पाया खोली	०.२०
चर काढणे -	३०	१.००	१.००
वीएम - १	५०.००	वीएम - २	४०.००

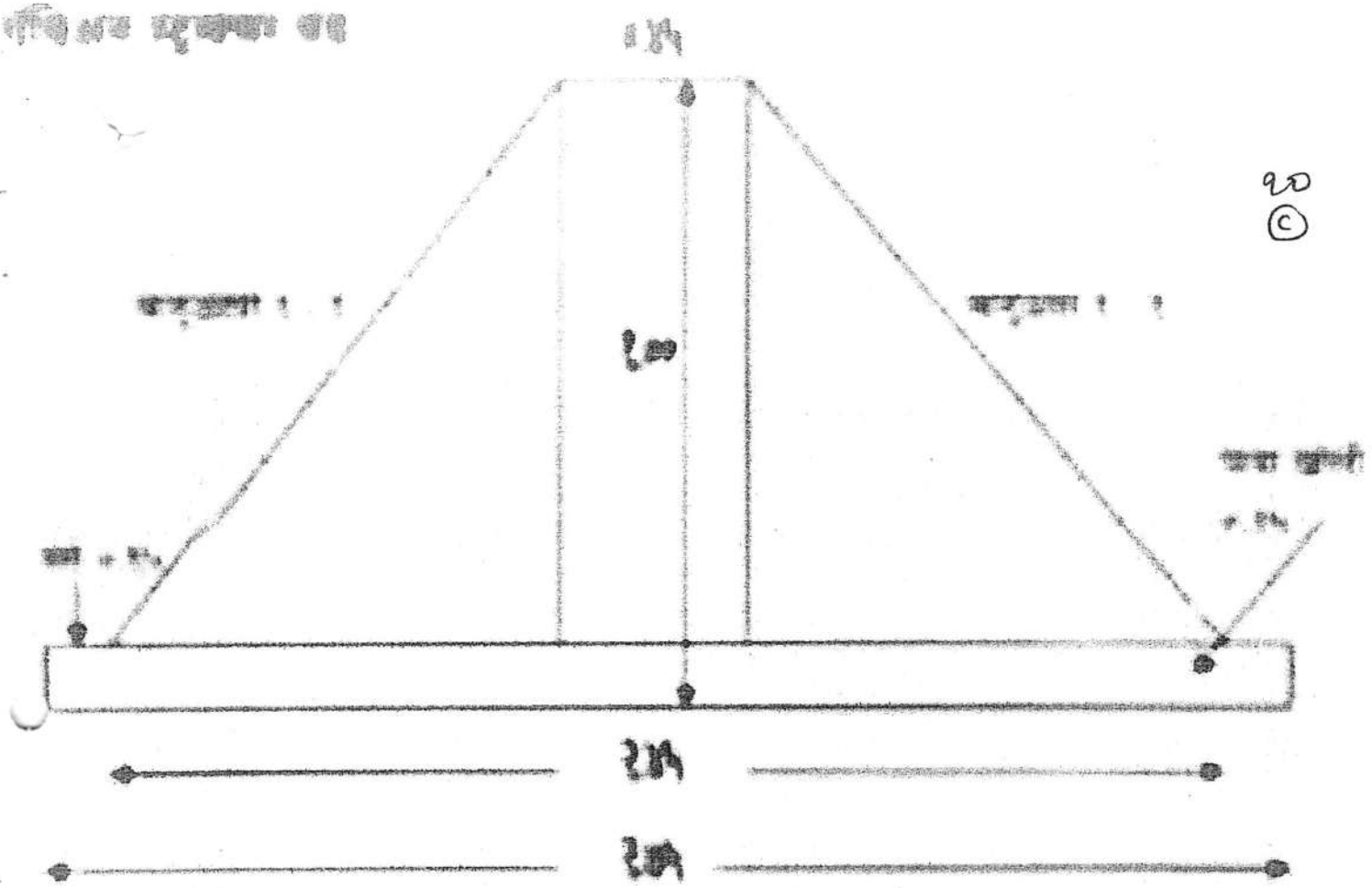
मीओटी काढणे -	लांबी	रुंदी	खोली
नग २ ह. १ मी	८.००	३:२०	१.२०

पायाच्या छेदाचा नकाशा



उपविभागीय अधिकारी (Krishna S. Bhavar)
उप-विभागीय पथक क्र. Deputy Conservator Of Forest
नंदुरबार Nandurbar Forest Division, Nandu

(13) 20



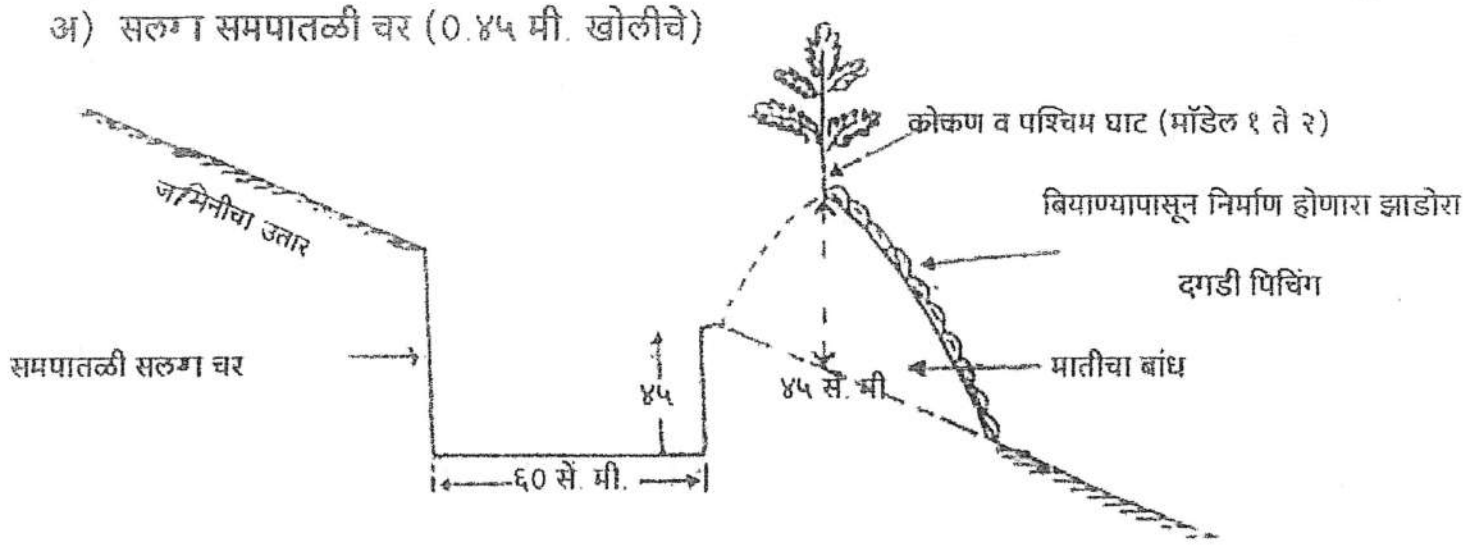
उपविभागीय अधिकारी
उप-विभागीय पथक क्र. १
नंदुरबार

(Krishna S. Bhavar)
Deputy Conservator Of Forest
Nandurbar Forest Division, Nandurbar

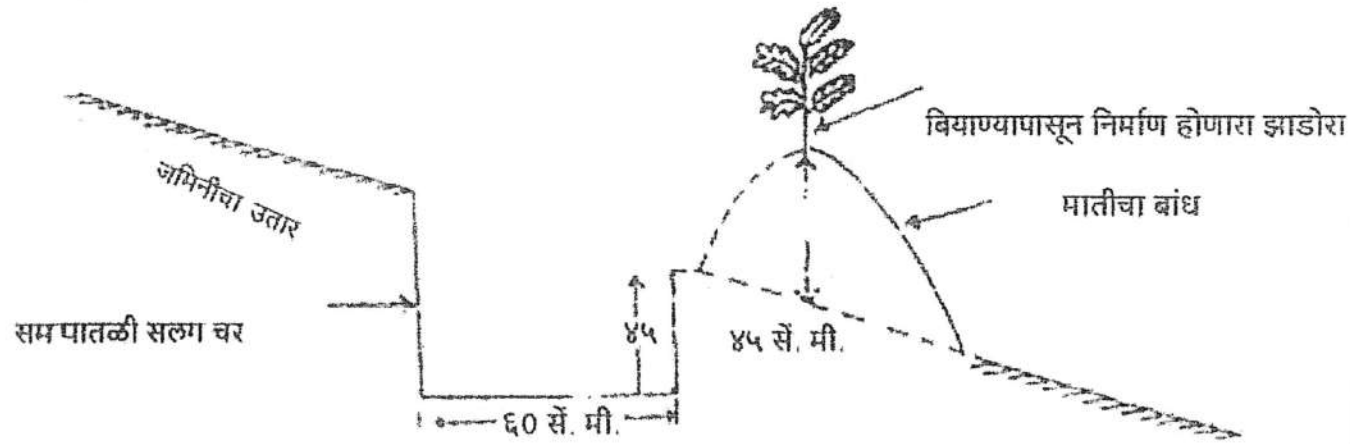
सलग समपातळी चराचे संकल्पचित्र

२०(१)

अ) सलग समपातळी चर (0.४५ मी. खोलीचे)



अवर्षण प्रवण क्षेत्र व हमखास पावसाचा प्रदेश (मॉडेल ५ ते ७)

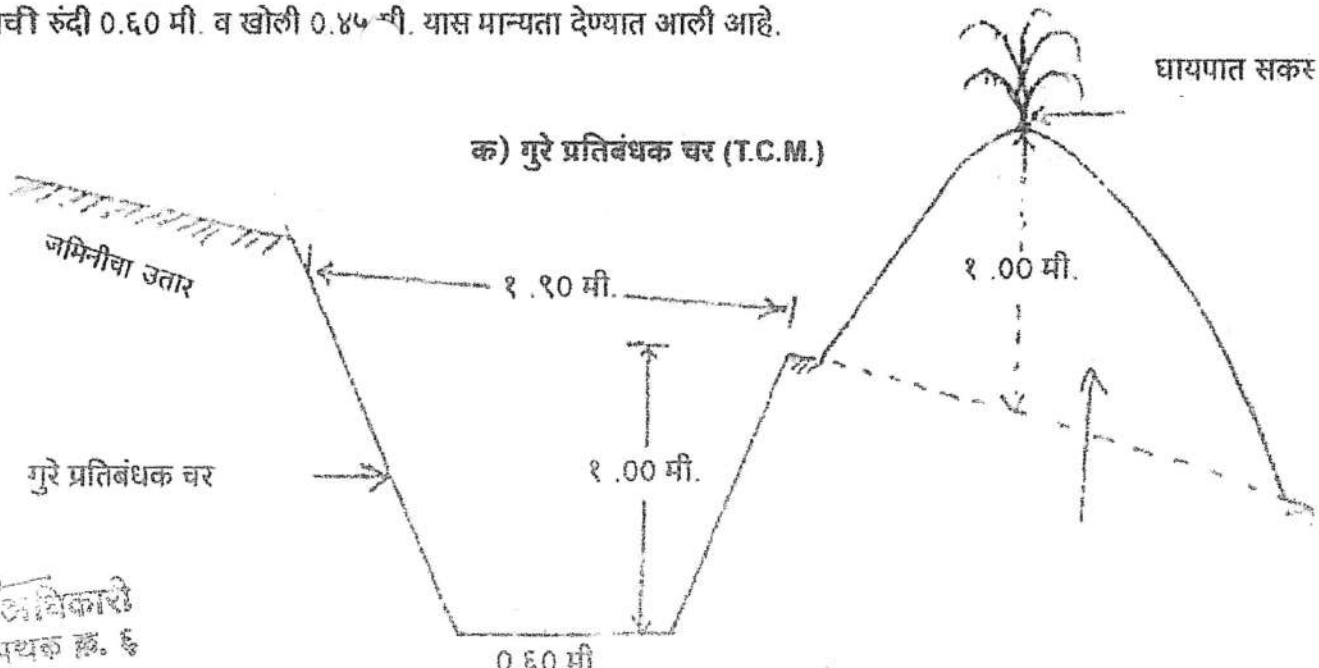


दि. २० जानेवारी २०१० च्या शासन निर्णयानुसार सलग समतल चरासाठी

अ) चराची रुंदी 0.६० मी. व खोली 0.३० मी.

ब) चराची रुंदी 0.६० मी. व खोली 0.४५ मी. यास मान्यता देण्यात आली आहे.

क) गुरे प्रतिबंधक चर (T.C.M.)

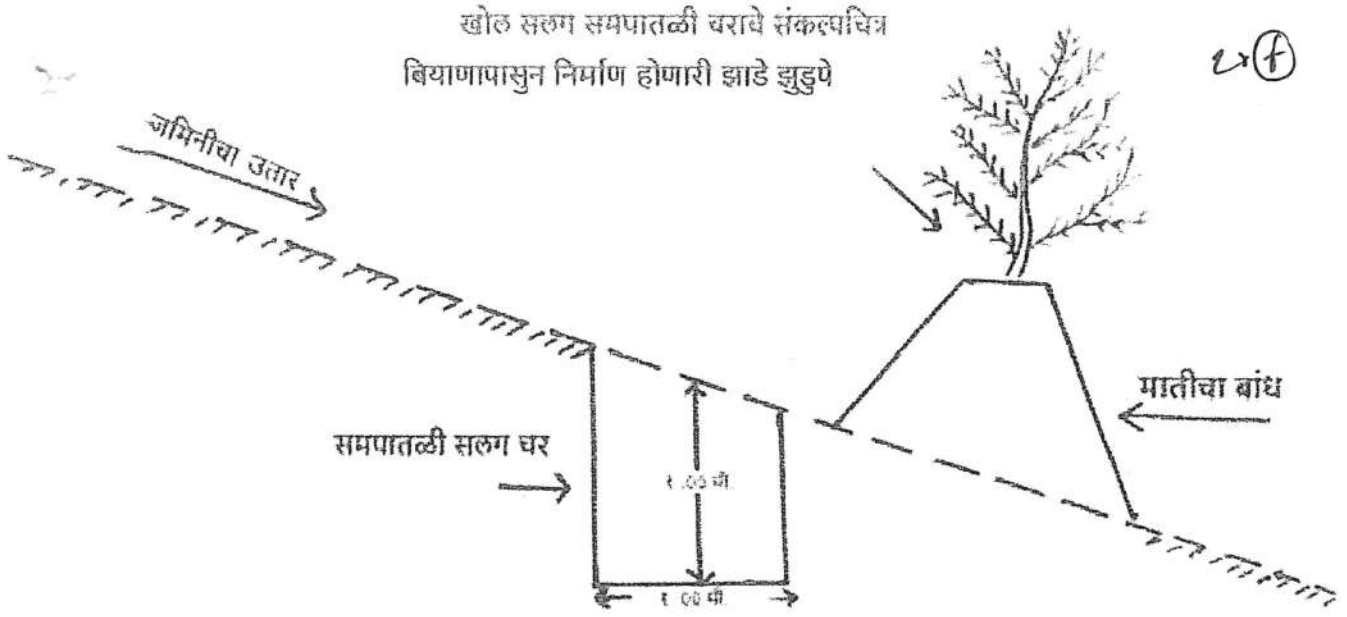


उपविभागीय अधिकारी
उप-विभागीय पथक क्र. ६
नंदुरबार

(Krishna B. Bhavar)
Deputy Conservator Of Forest
Nandurbar Forest Division, Nandurbar

खोल सलग समपातळी चरावे संकल्पचित्र

बियाणापासुन निर्माण होणारी झाडे झुडुपे



१. चराचा आकार = १.00 मी. x १.00 मी.
२. चराचा छेद = १.00 चौ. मी.
३. प्रती हेक्टरी चराची लांबी = २४० मी.
४. दोन चरातील अंतर = ३३.00 मी.
५. गॅपची लांबी = २० मी. नंतर २ मी. गॅप

❖❖❖

सहाय्यक प्रादेशिक अधिकारी
उप-विभागीय पथक क्र. ६
नंदुरबार

(Mahesh B. Bhavsar)
Deputy Conservator of Forest
Nandurbar Forest Division, Nandurbar

माती नाला बांध बंधिस्ती (Nala Bund)

उदाहरण –

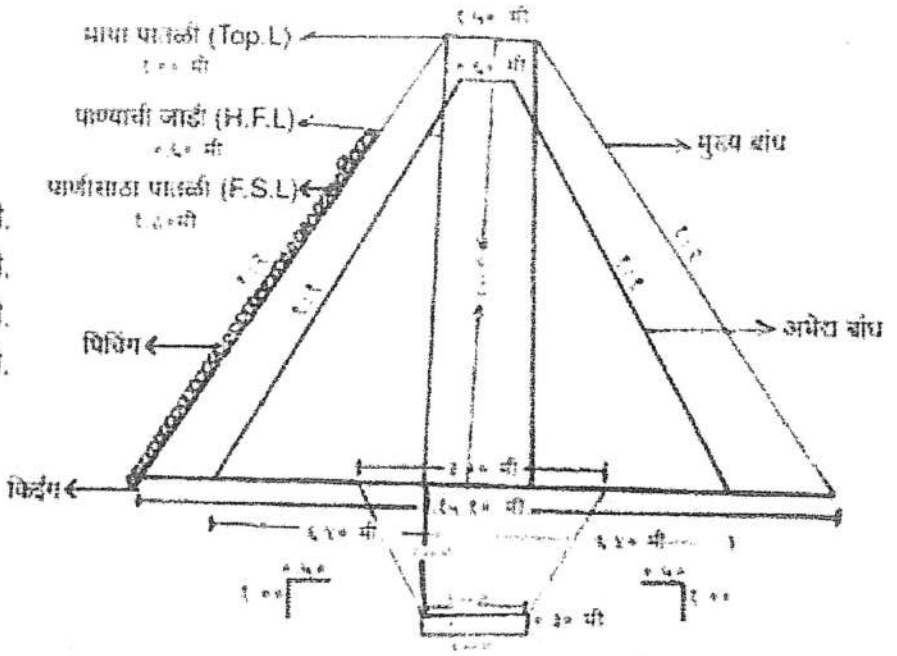
मॉडेल क्र. ३

पाणीसाठा उंची :१.८० मी.

पाण्याची जाडी :०.६० मी.

फ्री बोर्ड :१.०० मी.

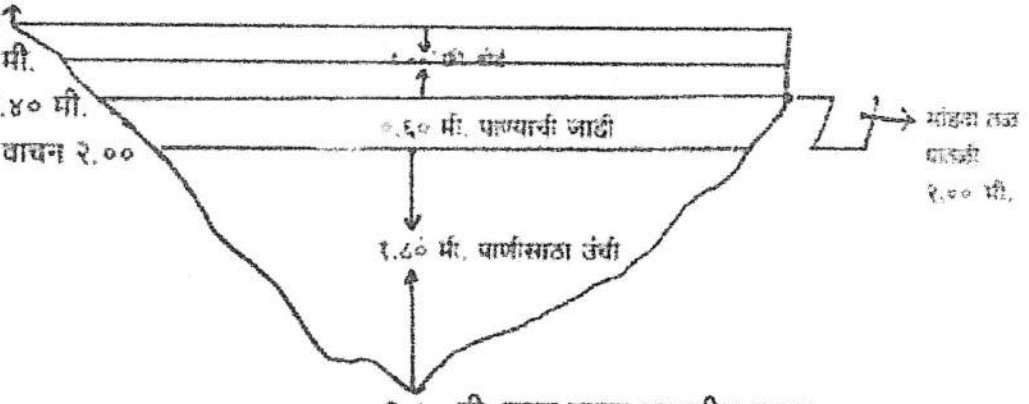
एकूण बांधाची उंची :३.४० मी.



उदाहरण -

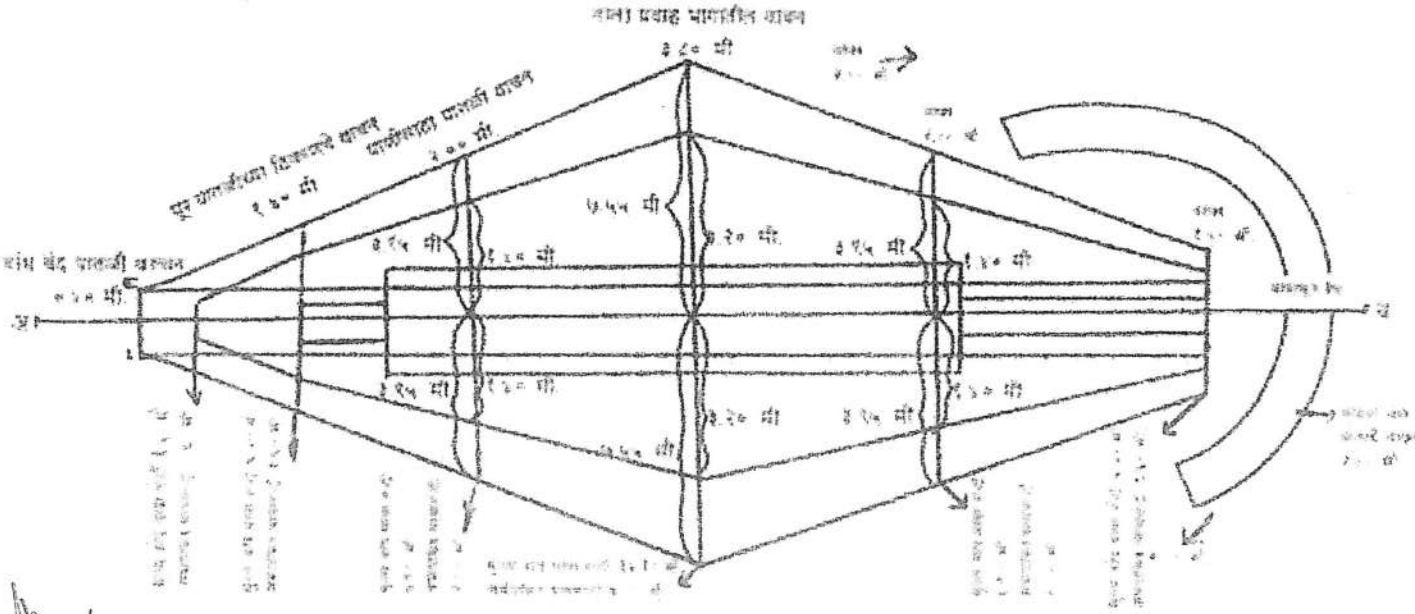
बांधाची आखणी करणे -

बांध बंद पातळी वाचन
(माथा पातळी) ०.४० मी.
अ.भिंत वाचन ०.१० मी.
पूर रेषा पातळी वाचन १.४० मी.
पाणीसाठा पातळी वाचन २.००



३.८० मी. नाला प्रवाह भागातील वाचन

उदाहरण -



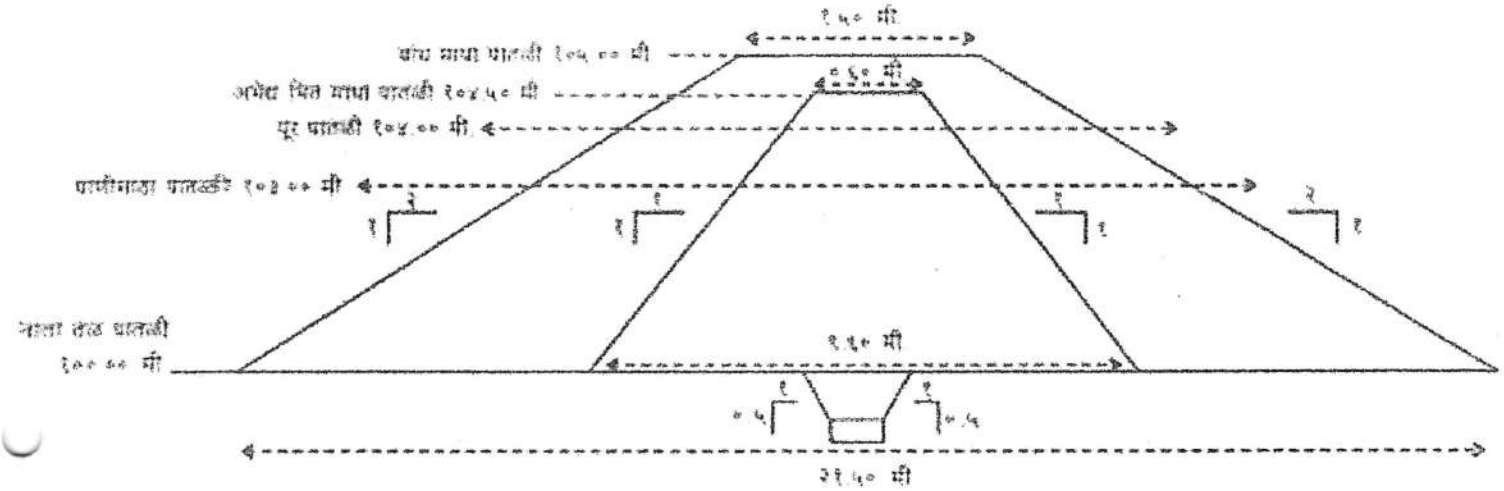
उप-विभागीय अधिकारी
उप-विभागीय अधिकारी क्र. ६
नंदुरबार

(Krishna B. Bhavar)
Sub-Divisional Forest
Officer, Nandurbar

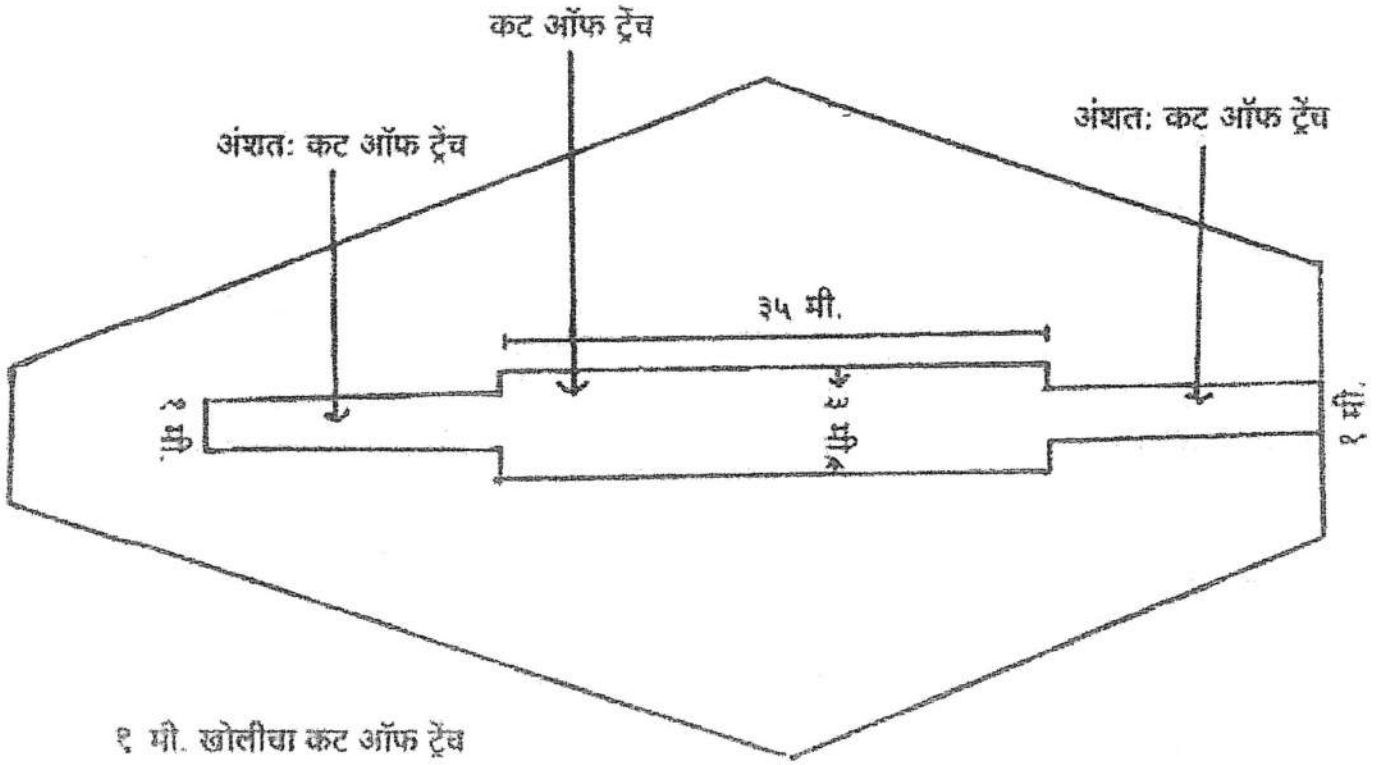
माती नालाबांधाचे संकल्पचित्र

मॉडेल क्र. ७

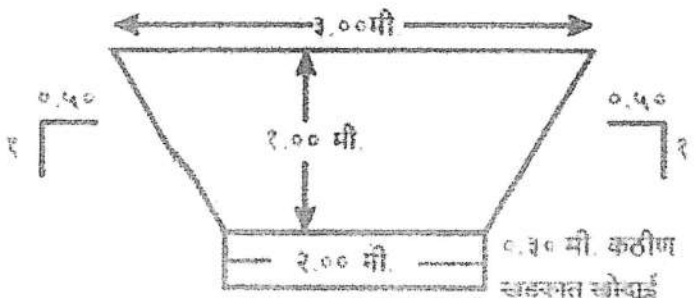
पाणीसाठा उंची ३.०० मी.



कट ऑफ ट्रेंच



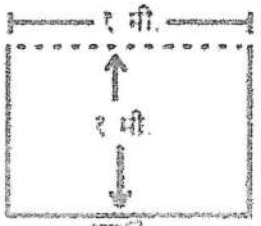
१ मी. खोलीचा कट ऑफ ट्रेंच



उदाहरण -

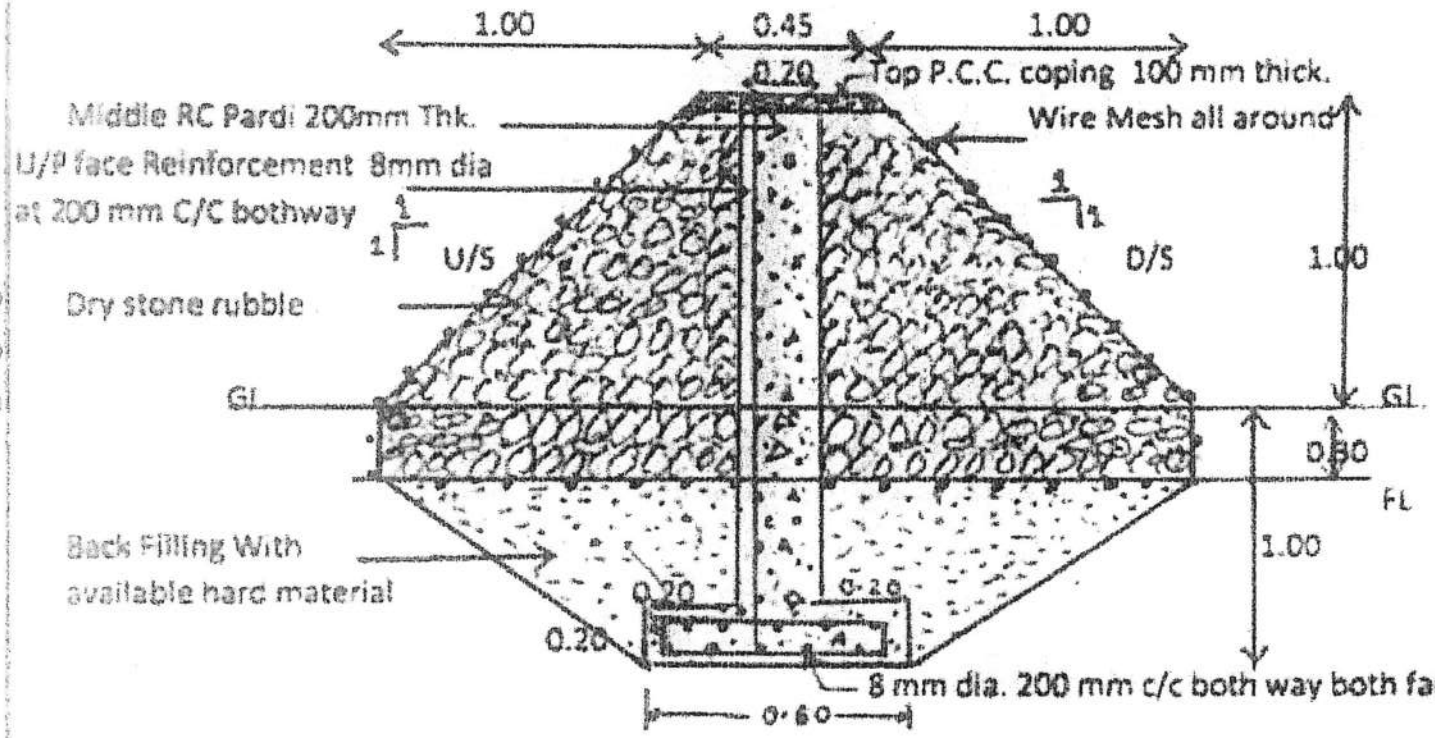
१) मॉडेल ३ ते ७

२) १.०० मी वर कठीण खडक



(Krishna B. Bhevar)

Typical cross section of Composite Gabian Bandhara with 200 mm thick. RC Pardi



Basic Data-

i) Height above GL = 1.00 M
ii)Height below GL= 1.00 M
iii) U/S slope = 1: 1
iv) D/S slope = 1: 1
v) Top Width = 0.45 M
vi) Thick.of RC Pardi- 0.20 M
viii)Slope of Ground = Upto 5 %
ix) Length of Bandhara with 2 m keying on both side limited to 14 m

Cross-Section Of Composite Gabian bandhara with RC Pardi

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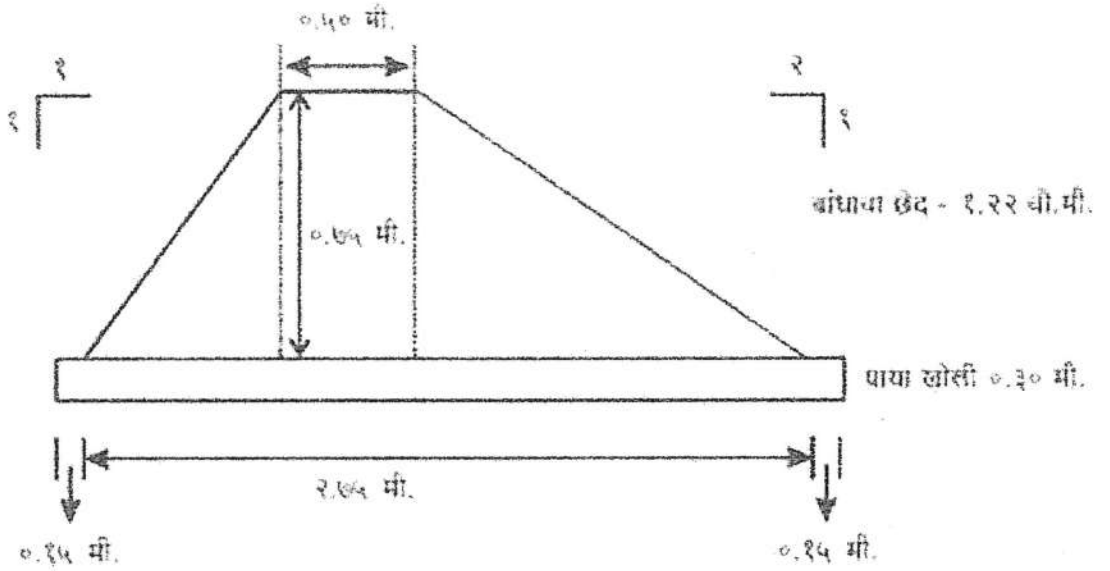
Nandurbar Forest Division, Nandurbar

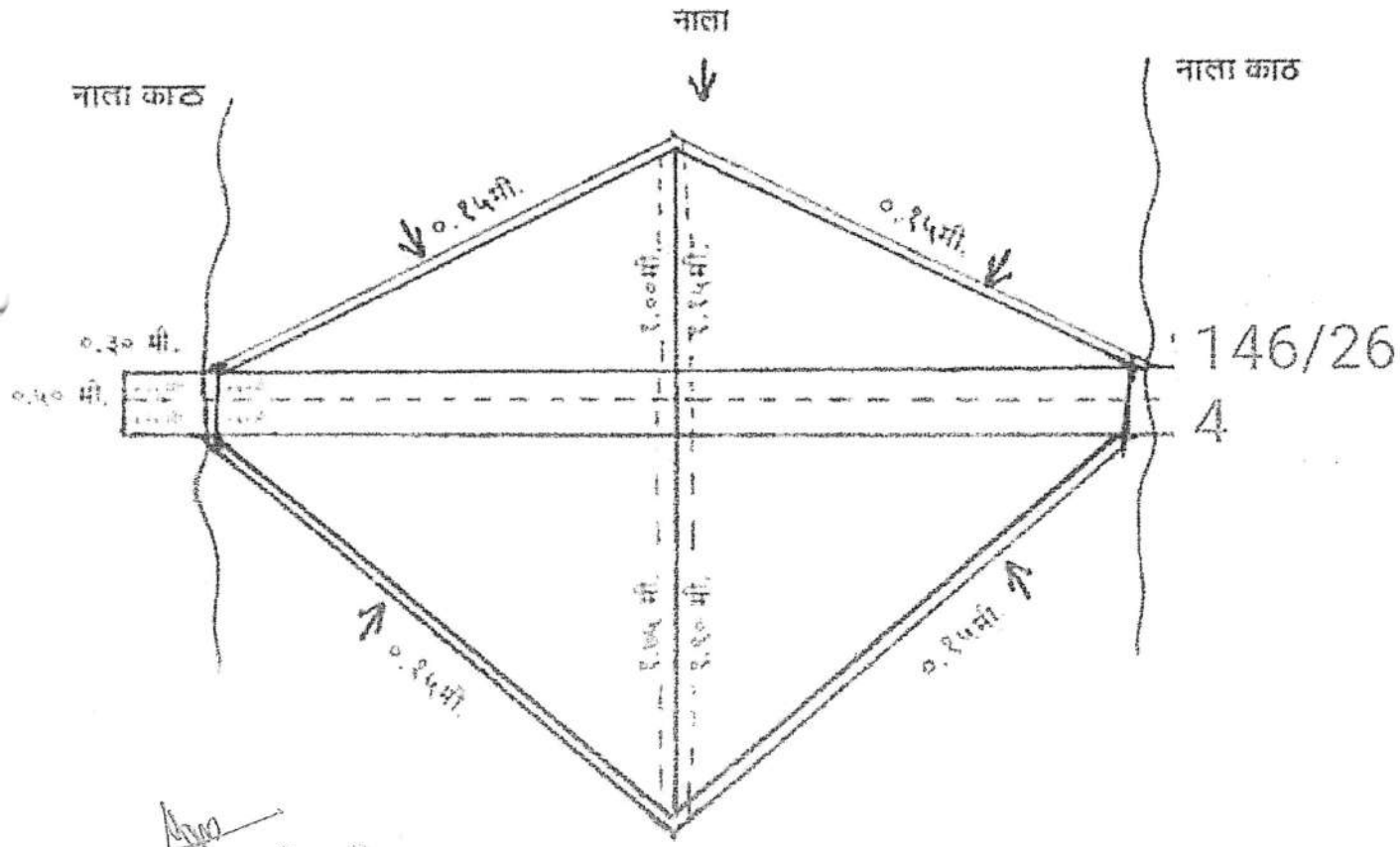
अनघड दगडी बांधाचे संकल्पचित्र

५ ते १५ % उतारगट

अ) पाणलोट क्षेत्राचा वरचा भाग (अप्पर रीचेस)



पायाचे संकल्पचित्र



उपविभागीय अधिकारी
उप-विभागीय पथक क्र. ६
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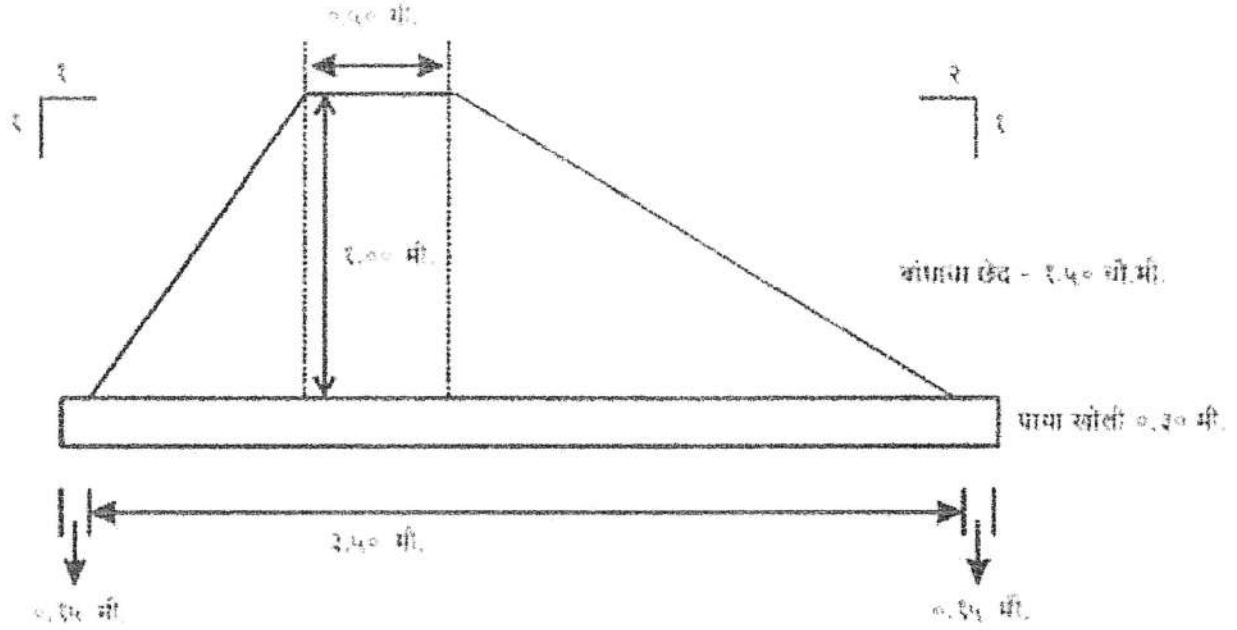
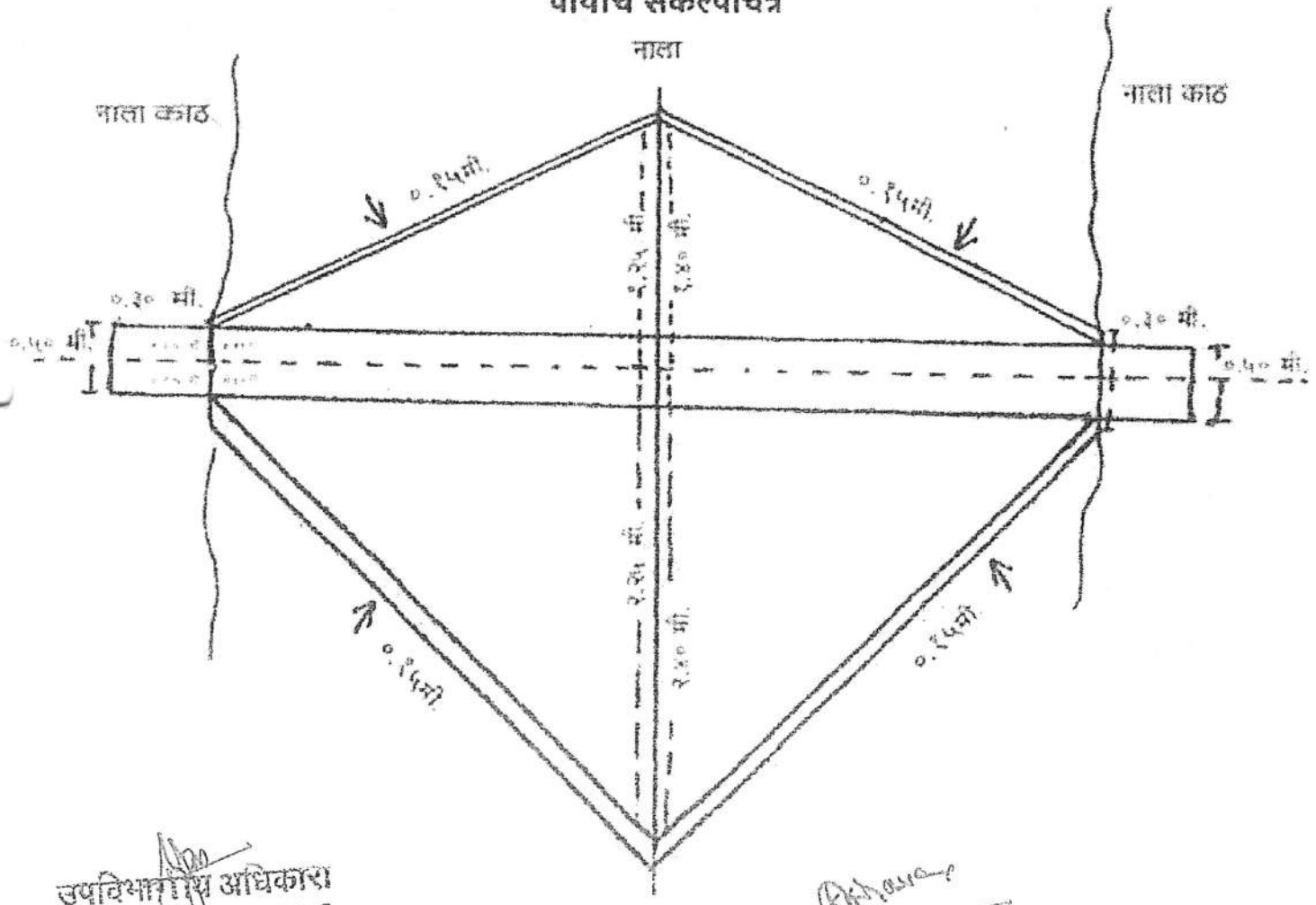
4

५ ते १५ % उतारगट

ब) पाणलोट क्षेत्राचा मधला भाग (मिड्ल रीचेस)



पायाचे संकल्पचित्र



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उप-विभागीय पथक क्र. ६
नंदुरबार

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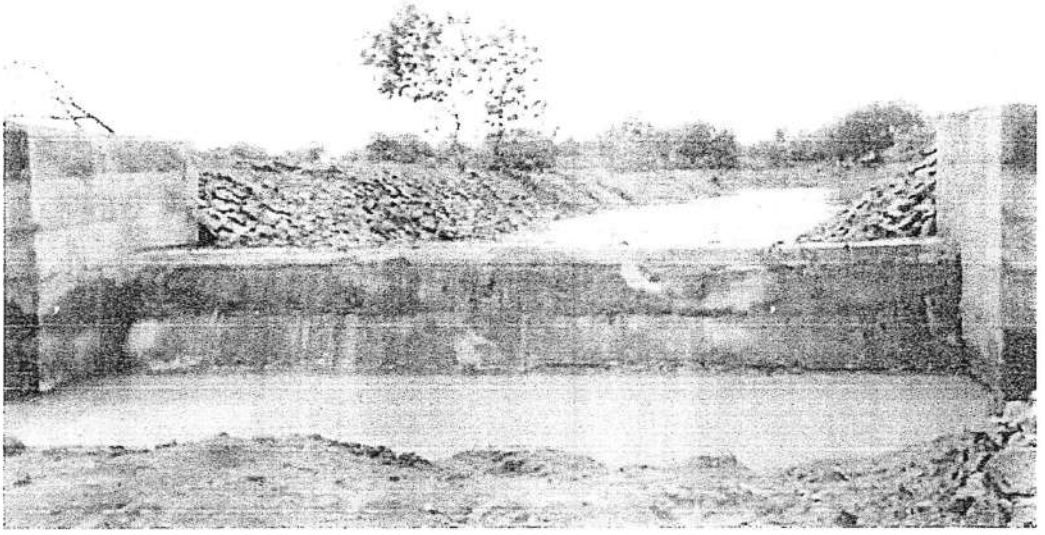
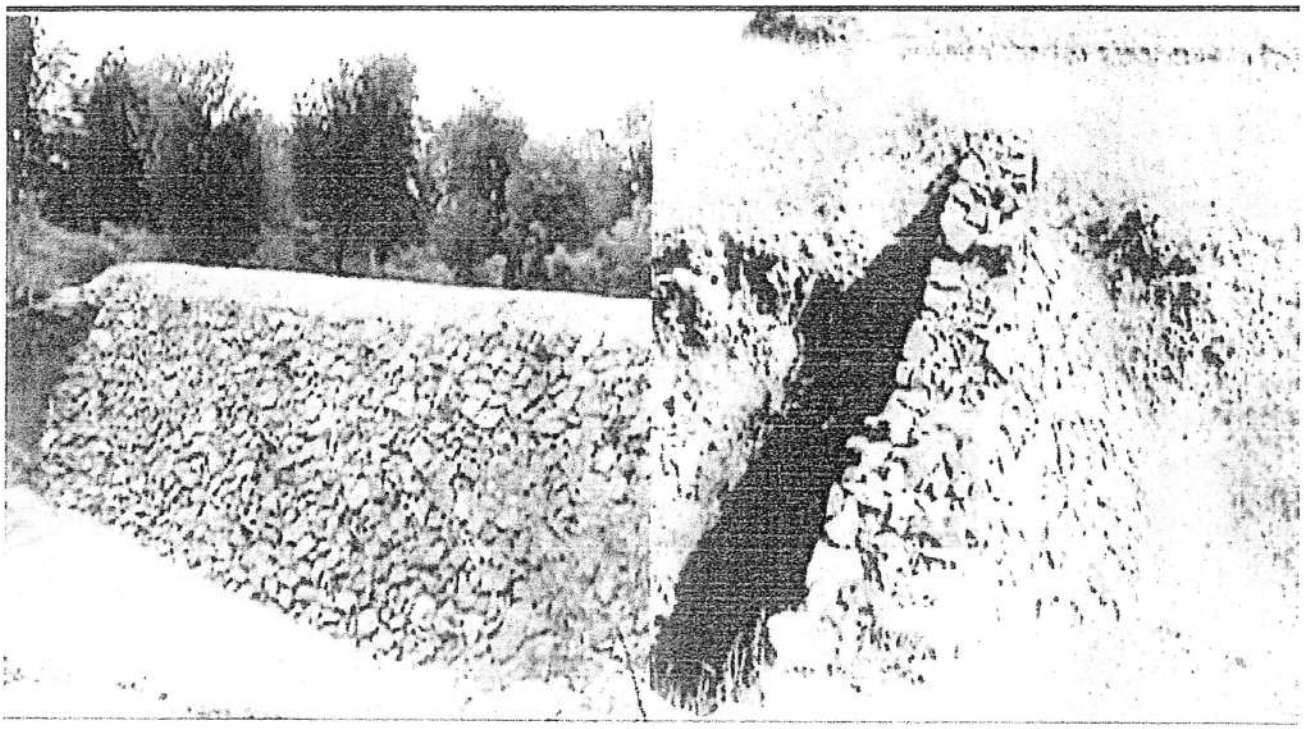
सिमेंट नाला बंधारा

मंजूर विकास क्षेत्र, मौजे. ता. अंबड़केळा, जि. औरंगाबाद

२०(L)





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उप-विभागीय पथक क्र. ६
नंदुरबार

(Krishna [illegible])

उपविभागीय अधिकारी
उप-विभागीय पथक क्र. ६
मुंबई

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