

Government of Maharashtra

By Speed Post

No. FLD-2022/C.R.01/F-10
Revenue and Forest Department,
Mantralaya, Mumbai- 400 032.
Date: 10/04/2023

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, Dist. Nandurbar in the State of Maharashtra

- Ref:** 1. Your Office Letter No. 8-28/2022/FC, Dt.10.01.2023
2. APCCF & Nodal Officer Letter No. Desk-17/Nodal/Dhule/ID-12942 (25)/2023-24, Dt.05.04.2023

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, Dist. 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, Dhule.
2. Chief Conservator of Forests (T), Dhule.
3. Deputy Conservator of Forests, Nandurbar.

**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)/ 25 /2023-24

Nagpur – 440 001, Date : 05/04/2023

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 10.01.2023.

2. Conservator of Forests, (T.) Dhule letter NO.D-5/Nodal/C.R./286, Dt.03/03/2023.

Sir,

The Government of India, Ministry of Environment, Forest and Climate Change, New Delhi vide letter under reference No. 1 has sought compliance on 10 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 10/01/2023 is submitted as under-

Sr. No.	Points	Compliance
i.	The State Govt has mentioned that three site visits two by DCF & one by the CCF (T). Dhule has been done and the Proposed area 73.94 ha of Kareghat is not part of Conservation reserve. However the DCF, Nandurbar in its Site Inspection Report dated 21.05.2021 mentioned that Nandurbar forest division has proposed some area to be declared as Kareghat Conservation reserve as per WPA, 1972. So this project area will be part of above mentioned conservation reserve if proposal for the same attains finally. This needs clarification	Clarification for conservation reserve. The site report 21/05/2021 DCF Nandurbar forest division proposed some area to be declared as Kareghat Conservation reserve. But M.I. tank Kareghat 73.94 ha. is not included in total Kareghat Conservation Deputy Conservator of Forests. Nandurbar Forest Division vide his letter No. 1047 Date 20/12/2021 (Annexure-I) has explained for Kareghat 940 ha. which is near Village Kareghat. Forest Conservation proposal 940 ha. it is only proposal submitted to State Government.
ii.	The State Govt has informed that as the area required for the proposed site is bare minimum the proposed site for the Minor Irrigation Tank at Kareghat is most suitable from Technical, Economical and Forest Point	The Justification for Dam alternative A-A line (First dam line) is required more forest submergence it is costly. In non forest area there is no suitable site for dam. B-B line is most economical line from all point


Dhule Circle/Id-12942/73.94 ha.

	of view and no suitable alternate on non forest land is available. However the detail of the alternatives examined along with detailed analysis and KML files of the alternatives examined needs submission.	of view hence it is suitable it is having less length height minimum & submergence is less hence it is suggested by Superintending Engineer, the copy of the alternative alignment MAP and KML File in CD's is enclosed herewith as Annexure-III & IV.
iii.	The State Govt has intimated that as the project is minor irrigation tank and it's submergence is very less hence, CAT Plan is not necessary. However the copy of the approved CAT plan as per provisions contained in Handbook of guidelines dated 28.03.2019 is required to be submitted.	The copy of the approved CAT Plan is enclosed herewith as Annexure-V
iv.	The Cost Benefit analysis is not submitted on the prescribed format as per Ministry's Handbook 2019 of FC Act 1980. The same shall be submitted.	Revised Cost Benefit Analysis is enclosed herewith as Annexure-vi
v.	The State Govt has informed that 3.60 ha non forest area, involved in the project will be used for canal However, KML file of the same is not provided by the State Govt vide its letter dated 13/12/2022 Moreover, the KML file of Non forest land involved in the instant project is also not found uploaded on PARIVESH. The same shall be submitted and uploaded.	Index Map has now been submitted. The copy of same is enclosed herewith as Annexure-vii. Subsequently, the revised KML File has now been uploaded on Parivesh Web Portal. The same is enclosed in CD's as Annexure-iv.
vi.	The State Govt. has informed that the area proposed for diversion is 73.94 ha. It has also been mentioned that the revised KML file is enclosed herewith. However, revised KML file of proposed forest and has neither been enclosed nor uploaded on PARIVESH. Further, the State Govt is again requested to submit/upload the component wise KML file of 73.94 ha forest land proposed for diversion on PARIVESH.	Area proposed KML File has now been uploaded on Parivesh Web Portal. The copy of the KML File in CD's is enclosed herewith as Annexure-iv
vii.	The DGPS map showing the component wise requirement of forest land and the latest Survey of India Topo-sheet showing the proposed forest land and for diversion has not been uploaded on PARIVESH. The same shall be submitted/uploaced.	The DGPS map and Survey of India Topo-sheet Map showing the proposed diversion land is enclosed herewith as (Annexure-vii) and uploaded on Parivesh Portal.
viii.	The State Govt has not provided the reason for uploading copy of technical sanction order against the ownership proof of CA land in online Part-1 as the same is still visible in online Part-1. The same shall be submitted	Technical sanction order is not applicable for CA. Proposal Ownership proof of C.A. land is enclosed herewith as Annexure-viii)

ix.	The 7/12 extract submitted with reference to the area proposed for CA does not mention that the area proposed for CA is Non- forest land. It has also not been specified that the Gut No. 117, Taluka-Sakri, Dist. Dhule having an area of 77.24 ha has been mutated for the purpose of CA. The State Govt. shall therefore submit the copy of revenue documents indicating that the area proposed for CA is Non-forest land and free from all encumbrances.	As per report submitted by the User Agency forwarded by The Deputy Conservator of Forests Nandurbar Forest Division and The Conservator of Forests (T.), Dhule following documents have been submitted. 1) Revenue documents i.e. certificate of Collector Dhule. (Annexure-ix) 2) Talathi Sutare Tal. Sakri Dist. Dhule has given mutation certificate. (Annexure-x) 3) Village map of Gut No. 117 Sutare (Annexure-xi) 4) Suitability Certificate (Annexure-xii)
x.	The State Govt has informed that the Compensatory Afforestation (CA) area has been provided to Forest Department is 91.26 ha but DCF, Dhule has given suitability certificate for 87.00 ha Remaining 4.26 ha land for Compensatory Afforestation is not suitable for plantation. However, the KML file of 91.26 ha. Non-forest/Revenue land given to the Forest Department for CA has not been uploaded on PARIVESH. The KML of the same is also not found attached with the physical copy of the letter- furnished by the State Govt. vide its letter dated 13.12.2022 The same shall be submitted/uploaded.	As per report submitted by the User Agency forwarded by The Deputy Conservator of Forests Nandurbar Forest Division and The Conservator of Forests (T.), Dhule following documents have been submitted. 1) Property Card of Gut No. 117 Sutare, and Gut No. 83 Satarpada Tal. Sakri Dist. Dhule (Annexure-viii) 2) Village Map Gut No. 117 Sutare (Annexure-xi) 3) Village Map Gut No. 83 Satarpada (Annexure-xiii) 4) KML File of CA has now been uploaded on Parivesh Web Portal. The same is enclosed in CD's as (Annexure-iv)

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


(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-1
(Page 1 to 3)

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उपवनसंरक्षक, नंदुरबार वन विभाग, शहादा
यांचे कार्यालय
"वनभवन", दोंडाईचा रोड शहादा- ४२५४०९.
दुरध्वनी ०२५६५-२२३४८ फॅक्स-२२३४८५
ई-मेल : Dycf_shahada@yahoo.co.in



Office of Deputy Conservator Of Forest
Nandurbar Forest Division, Shahada
"Vanbhavan" Doindaicha Road,
Shahada- 425209
Lndline- 02565-22348 Fax-223485
email- Dycf_shahada@yahoo.co.in

पत्र

विषय:- वन जमीन प्रस्ताव एकुण क्षेत्र ७३.९४ हेक्टर बाचत लघु
पाटबंधारे योजना, कारेघाट ता.नवापूर जि.नंदुरबार.

जावक क्र. अ./जमीन/व.ज.प्र./ १०४७ / सन २०२१-२२
शहादा-४२५४०९ दिनांक:- २०/१२/२०२१

प्रति,

मा. वनसंरक्षक,(प्रा.)
धुळे

संदर्भ:- १. आपले कडीलपत्र कक्ष-५/नोडल/प्र.क्र./१४८/२०२१-२२ दि.१३.१२.२०२१

उपरोक्त विषयांकित प्रकरणी संदर्भान्वये प्राप्त झालेल्या पत्रातील त्रुटी पुर्तता करुन अहवाल सोबतप्रमाणे सादर करीत आहे.

माहितीस्तव सविनय सादर.

सोबत- ग्राम सभा ठराव.

Bhavor
(के.वी.भवर)
उपवनसंरक्षक,
नंदुरबार वन विभाग, शहादा.

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वन जमीन प्रस्ताव एकुण क्षेत्र ७३.९४ हेक्टर बाबत लघु पाटबंधारे योजना, कारेघाट
ता.नवापूर जि.नंदुरबार.

मुद्दा क्रं.1 - सदरच्या लघु सिंचन प्रकल्पाची स्थानिक लोकांची गेल्या 40 वर्षांपासुन मागणी आहे. सदर क्षेत्राचा समावेश प्रस्तावित कारेघाट संवर्धन राखीव क्षेत्रात करण्यात आलेला आहे. तथापी सदरचे क्षेत्र हे अंतिमतः राखीव संवर्धन म्हणून घोषित करण्यात आलेले नाही. तसेच सदरचा सिंचन प्रकल्प पुर्णत्वास जाण्याकरिता अडथळे येऊ शकतात याचा पूर्व दृष्टीकोन लक्षात घेऊन स्थानिक ग्रामस्थांनी 2 डिसेंबर, 2021 रोजी ग्रामसभा घेऊन ग्रामसभेत, सदरचा प्रकल्प महत्वाचा असल्याने सदर प्रकल्पासाठी लागणारे एकुण क्षेत्र 73.94 हे. कारेघाट संवर्धन राखीव क्षेत्राच्या एकुण क्षेत्रातून वगळण्याचा एकमताने ठराव या कार्यालयास सादर केला. त्याबाबतचा ग्रामसभा ठराव यासोबत सादर केला आहे. सदरच्या लघु सिंचन प्रकल्पाची मागणी सुमारे 40 वर्षांपासुन असल्याने प्रकल्प होणे गरजेचे आहे. सबब प्रस्तावास शासनाच्या पूर्व परवानगीसाठी शिफारस करण्यात येत आहे.

मुद्दा क्रं.2- सदर प्रस्ताव नंदुरबार वनविभागातील नवापूर परीक्षेत्रातील हा कारेघाट विटात येत असुन कक्ष क्रं-4। मध्य आहे. दि. 16.12.2021 रोजी पुनश्चः मौका तपासणी केली सदर मौका तपासणीस निम्न स्वाक्षरीकर्ता यांचेमह सहा-वनसंरक्षक. (प्रा.व वन्यजिव) नंदुरबार, वनक्षेत्रपाल, नवापूर, वनपाल, खेकडा व वनसंरक्षक. कारेघाट हे उपस्थित होते, सदर मौका तपासणी कारांना सदर गांवाचे सरपंच व इतर गांवकरी उपस्थित होते. सदर प्रस्तावात जवळपास 28294 वृक्ष तोड होणार आहे, त्यामध्ये जास्त प्रमाण हे पळसाच्या झाडाचे आहे. 30 से.मी. गोलाईच्या आतील 11333 वृक्ष आहेत, 31 ते 45 से.मी. गोलाईचे 7774 वृक्ष आहेत. सदर प्रस्तावमुळे जवळपासच्या कारेघाट, लवकडकोट, खोकरवाडा, हिराफर्ला या गांवाचा पाण्याचा व सिंचनाचा प्रश्न मिटनार आहे. जवळपास 1300 हेक्टरचे क्षेत्र हे सिंचनाखाली येईल.

कारेघाट नियतक्षेत्राचे एकुण क्षेत्र 940.894 हेक्टर असुन सदर क्षेत्र हे कारेघाट संवर्धन राखीव क्षेत्राचा भाग म्हणुन हे प्रस्तावित आहे, त्यातील ल.पा.तलाव कारेघाट ता.नवापूर जि.नंदुरबार साठी 73.94 हेक्टर क्षेत्र वगळण्यात येईल. परंतु या क्षेत्राची अधिसूचना निघालेली नसल्याने सदर प्रस्तावास परवानगी देण्यास काही हरकत नाही.

Bhaver
(के.वी.भवर)

उपवनसंरक्षक,

नंदुरबार वन विभाग, शहादा.



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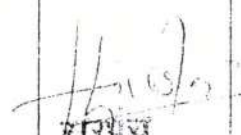


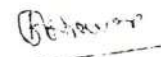
ग्रामपंचायत - कारेघाट

ग्रामपंचायत कार्यालय, कारेघाट ता. नवापूर, जिल्हा. नंदुरबार (महाराष्ट्र) पिन कोड ४२५४१८




ग्रामपंचायत प्रशासक आदेश क्र 16

ग्राम पंचायत कारेघाट रशा. ता. १७/७/२०२१ प्रशासक ता. नवापूर जि. नंदुरबार	विषय व आदेश तपशील	शेरे व तारखेसह आदेशाची अंमलबजावणी
	<p>विषय : प्रस्तावित लघू पाटबंधारे प्रकल्प पुढील कारेघाट कार्यान्वीत करणेबाबत.</p> <p>आदेश तपशील : ल.पा. तलाय कारेघाट ता.नवापूर वरिष्ठ कार्यालयास धरणाचे बुडीत क्षेत्रात ७३.९४ हेक्टर वनजमीन सादर. जात आहे. तसेच कारेघाट वनक्षेत्र राखीव संवर्धन म्हणून आपल्या विभागामार्फत घोषित करणार आहेत. याबाबत कारेघाट ग्रामसभेने या अगोदर ठराव संमत केला होता. कारेघाट राखीव संवर्धनातून ल.पा. तलाय कारेघाट ता.नवापूर वनक्षेत्र ७३.९४ हेक्टर हे कारेघाट गावाजवळ असून कोपऱ्यात येते. आम्हाला पाण्याची अत्यंत गरज आहे. तरी प्रस्तावित राखीव संवर्धातून ७३.९४ हेक्टर वनजमीन ल.पा. योजना कारेघाटसाठी द्यावी व उर्वरीत क्षेत्राचा राखीव संवर्धनाचा प्रस्ताव सादर करावा. तरी ल.पा. योजना कारेघाट ता.नवापूर धरणाचे कामास ७३.९४ हेक्टर वनजमीन उपलब्ध करून द्यावी. जेणेकरून धरणाचे काम त्वरीत मार्गी लागेल. तसा प्रस्ताव पाठविण्यास शिफारस करावी.</p> <p>दिनांक : 02/12/2021</p> <p style="text-align: right;">  ग्रामसेवक ग्रामपंचायत कारेघाट ता. नवापूर जि. नंदुरबार </p> <p>आदेश,</p> <p>ज्याअर्थी, कोविड २०१९ चा प्रादुर्भाव मुळे ग्रामपंचायत निवडणुका होणार नसल्याने वाचले ०१ प्रमाणे प्रशासक म्हणून या कार्यालय साठी मला नियुक्त केले आहे.</p> <p>ल.पा. तलाय कारेघाट ता.नवापूर वरिष्ठ कार्यालयास धरणाचे बुडीत क्षेत्रात ७३.९४ हेक्टर वनजमीन सादर. जात आहे. तसेच कारेघाट वनक्षेत्र राखीव संवर्धन म्हणून आपल्या विभागामार्फत घोषित करणार आहेत. याबाबत कारेघाट ग्रामसभेने या अगोदर ठराव संमत केला होता. कारेघाट राखीव संवर्धनातून ल.पा. तलाय कारेघाट ता.नवापूर वनक्षेत्र</p>	<p>पुढील कार्यवाही साठी वरिष्ठ कार्यालयास सादर</p> <p style="text-align: right;">  ग्रामपंचायत कारेघाट ता. नवापूर जि. नंदुरबार </p>


 जिल्हा प्रशासक
 नंदुरबार जिल्हा कार्यालय

७३.९४ हेक्टर हे कारेघाट गावाजवळ असून कोणत्यात येत. आम्हाला पाण्याची अत्यंत गरज आहे. तरी प्रस्तावित राष्ट्रीय संवर्धनातून ७३.९४ हेक्टर वनजमीन ल.पा. योजना कारेघाटसाठी द्यावी व त्वरीत क्षेत्राचा राखीव संवर्धनाचा प्रस्ताव सादर करावा. तरी ल.पा. योजना कारेघाट ता.नवापूर धरणाचे कामास ७३.९४ हेक्टर वनजमीन उपलब्ध करून द्यावी. जेणेकरून धरणाचे काम त्वरीत मार्गी लागेल. तसा प्रस्ताव पाठविण्यास शिफारस करण्यात येत आहे.

दिनांक : ०२/१२/२०२१



(पी. जी. वळवी)

प्रशासक, ग्रामपंचायत कारेघाट
ता. नवापूर जि. नंदुरबार



**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

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

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 crested 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*), Lucerne (*Medicago sativa*), Vetch (*Vicia villosa*), and Caucasian clover (*Trifolium ambiguum*) among legumes. The plant species suitable for avenue and ornamental purposes are: *Alstonia scholaris*, *Bauhinia variegata*, *Cassia fistula*, *Delonix regia*, *Erythrina stricta*, *Exbuclandia poulnea*, *Hibiscus 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

(8) (9)

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

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Rainfall pattern of the area and water seepage coupled with geological formation results in landslides. Water plays an important role in triggering of landslides and mass wasting processes along with other factors such as slope and nature of soil/land-cover/land-use. However, most of the landslides are caused by human negligence. Road construction, overgrazing of hill slopes, felling of trees for timber, fuel, and fodder and upslope extension of cultivation are some of main causes of landslides. Gabion structures shall be provided at the base of the land slide zones to control the toe erosion by water

Catch-water Drains

Among the most effective, practical and least expensive measures of landslide hazard management is construction of catch-water drains for run-off and surface waters in the identified hazard-prone zone so that little or no water can infiltrate into the ground. All the streams and minor watercourses would be diverted around the crown of the slide or the potentially hazardous area through catch water drains with an adequate gradient. The catch water drains when provided avoids runoff to pass over such vulnerable areas and water is guided through these drains provided on foothill or along the katcha/pucca roads. The ground surface of threatened area is leveled out to eliminate all depressions where water can accumulate.

SCHEDULE OF TREATMENT PLAN

The total time scheduled for the execution of the planned CAT works has been kept at 3 years (including 1 year for maintenance). Accordingly, areas from each sub-watershed have been prioritized for treatment and a year-wise plan has been assigned. Zero Year has been kept for the development of nursery and raising sapling for plantation. Maximum area for treatment will be taken up in the first year and minimum will be taken up in the third year. In the first and second years the areas taken up for treatment are 225 ha and 178 ha, respectively and in the third year the area to be taken up for treatment is 72 ha. Accordingly, a separate budget for the maintenance is given in Table 2.00

Provision for Monitoring and Evaluation of CAT Plan.

A provision of Rs. 5.00 lakh is being made for monitoring and evaluation activities including the expenditure likely to be incurred on conducting meetings / seminar / workshops at the head quarter and outside. This will include payments made to the non-official members of the monitoring evaluation committee on accounts of their expenditure on traveling and boarding etc. The payment to the external agencies shall also be met out from this part.

Project Monitoring and Reporting Procedures

Meetings would be held every three months to resolve problems arising in plan implementation. A Joint committee may be formed with the Environment Cell of Project Proponent and State Forest Department; the team members must ensure implementation and monitoring of the CAT works and review the progress from time to time. Quarterly progress reports and completion certificates would

be submitted to Project Proponent for evaluation and disbursement of finance. In addition, the work done should be published through public awareness campaigns. Visual and print media may be used to gain maximum benefit by beneficiaries. Such efforts would resolve conflicts which otherwise are potential sources for project delays.

Summary of Cost of Works

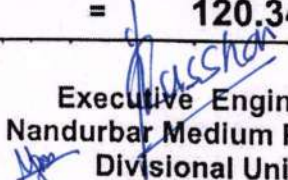
The cost of all works proposed in the CAT plan is enumerated in Table 1.00 (Attached separately)

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**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

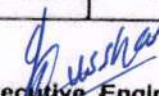

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Yearwise Physical and Financial Programme of Catchment Area Treatment Plan.

(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


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Estimate Per Ha.

Construction of Continuous 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	Measurement 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


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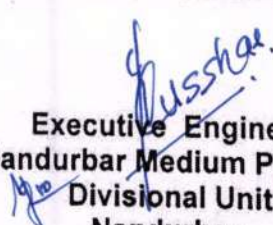
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ESTIMATE

Wire Crate Check Dam

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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 crates	32.04	Cum	144.25	4621.77
6	(f) Cost of GI wire	2.25	Quintal	8000.00	18000
7	(g) Carriage of GI wire manually to an average lead of 1 km	2.25	Quintal	83.50	187.875
	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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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 0.87 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

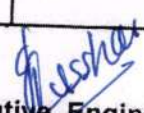
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**Nandurbar Medium Project,
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Grazing / Pasture Development in existing forest

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 cm ³	700	Nos.	9.36	6552.00
5	Filling of pits 45 cm ³	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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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/-


[Signature]
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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 cm ³	700	Nos.	9.36	6552.00
5	Filling of pits 45 cm ³	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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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

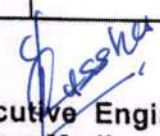
Bhuskar
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26

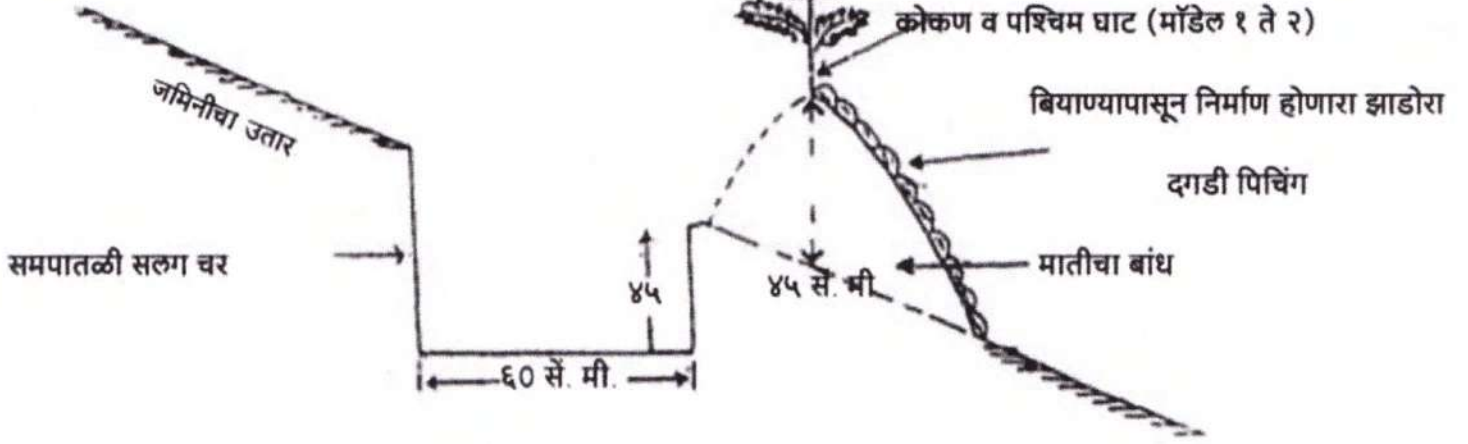
Assisted natural regeneration in existing forest

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 cm ³	700	Nos.	6.24	4364.92
7	Filling of pits 45 cm ³	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/-

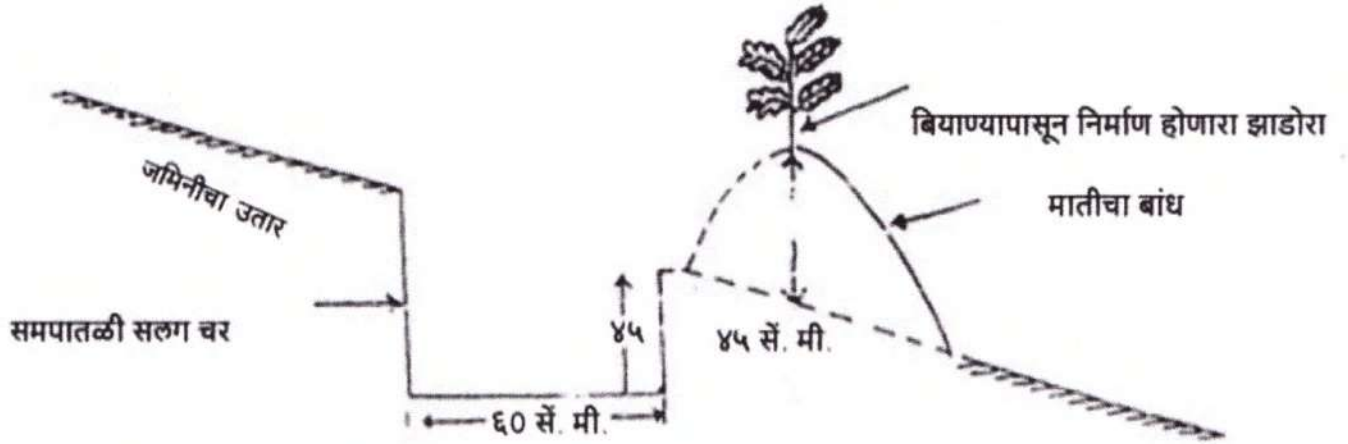

 Executive Engineer
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सलग समपातळी चराचे संकल्पचित्र

अ) सलग समपातळी चर (0.85 मी. खोलीचे)



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

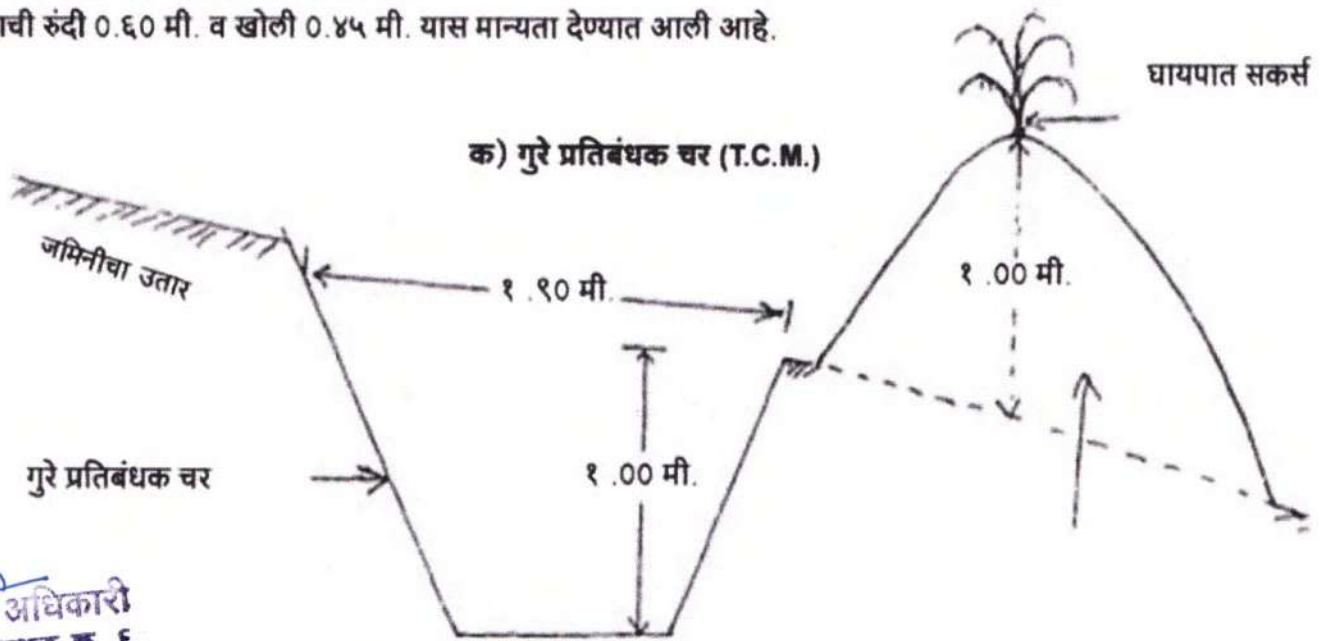


दि. २० जानेवारी २०१० च्या शासन निर्णयानुसार सलग समतल चरासाठी

अ) चराची रुंदी ०.६० मी. व खोली ०.३० मी.

ब) चराची रुंदी ०.६० मी. व खोली ०.४५ मी. यास मान्यता देण्यात आली आहे.

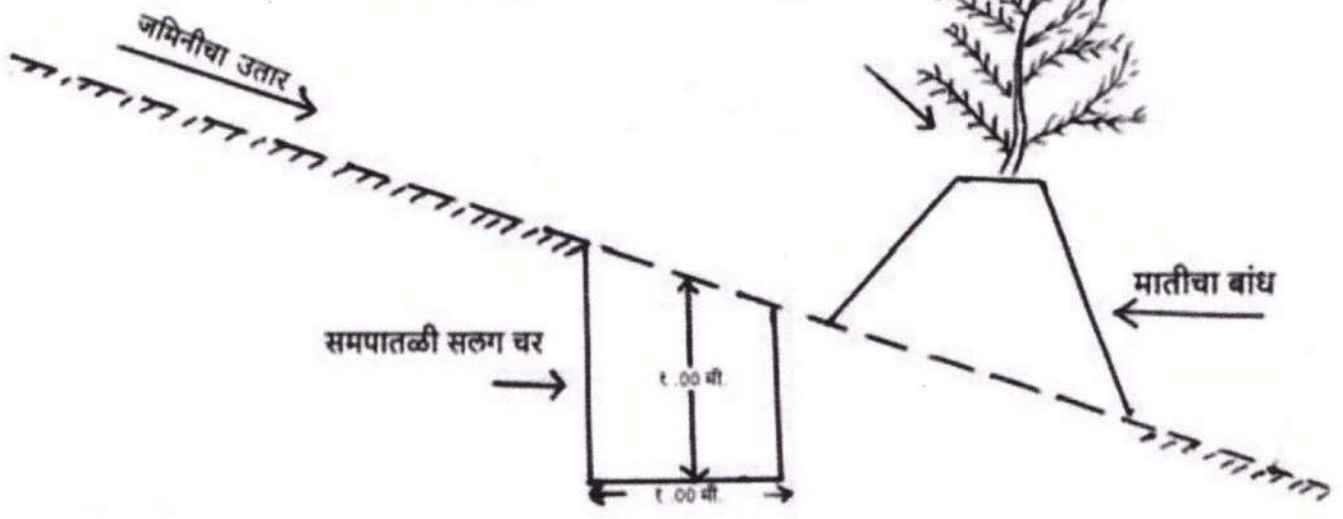
क) गुरे प्रतिबंधक चर (T.C.M.)



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Nandurbar Forest Division, Nandurbar

खोल सलग समपातळी चराचे संकल्पचित्र
बियाणापासुन निर्माण होणारी झाडे झुडुपे



१. चराचा आकार = १.०० मी. x १.०० मी.
२. चराचा छेद = १.०० चौ. मी.
३. प्रती हेक्टरी चराची लांबी = २४० मी.
४. दोन चरातील अंतर = ३३.०० मी.
५. गॅपची लांबी = २० मी. नंतर २ मी. गॅप



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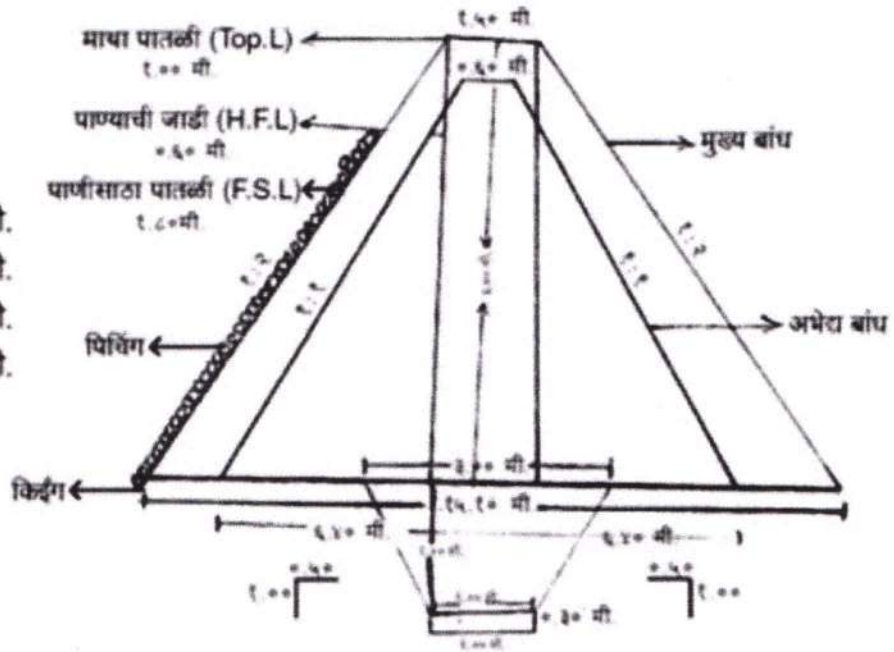
(Krishna B. Bhavar)
Deputy Conservator Of Forest
Nandurbar Forest Division, Nandurbar

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

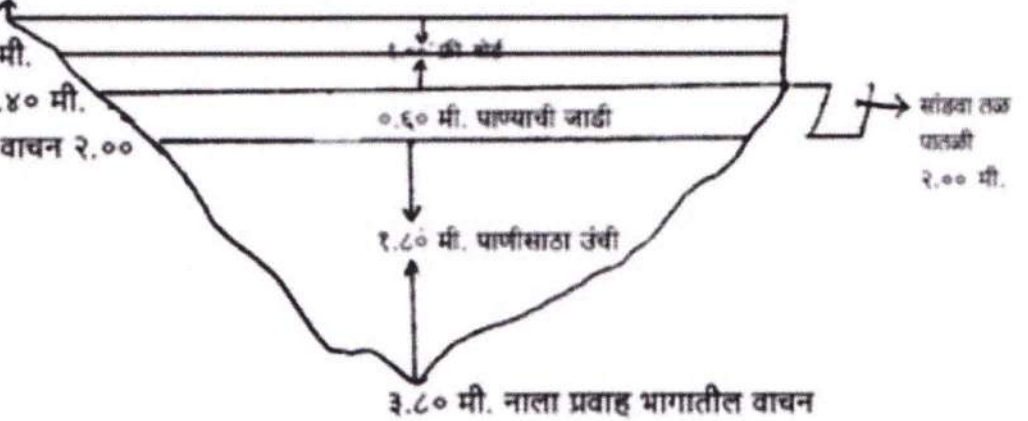
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अ.भित्त वाचन ०.९० मी.

पूर रेखा पातळी वाचन १.४० मी.

पाणीसाठा पातळी वाचन २.००

३.८० मी. नाला प्रवाह भागातील वाचन

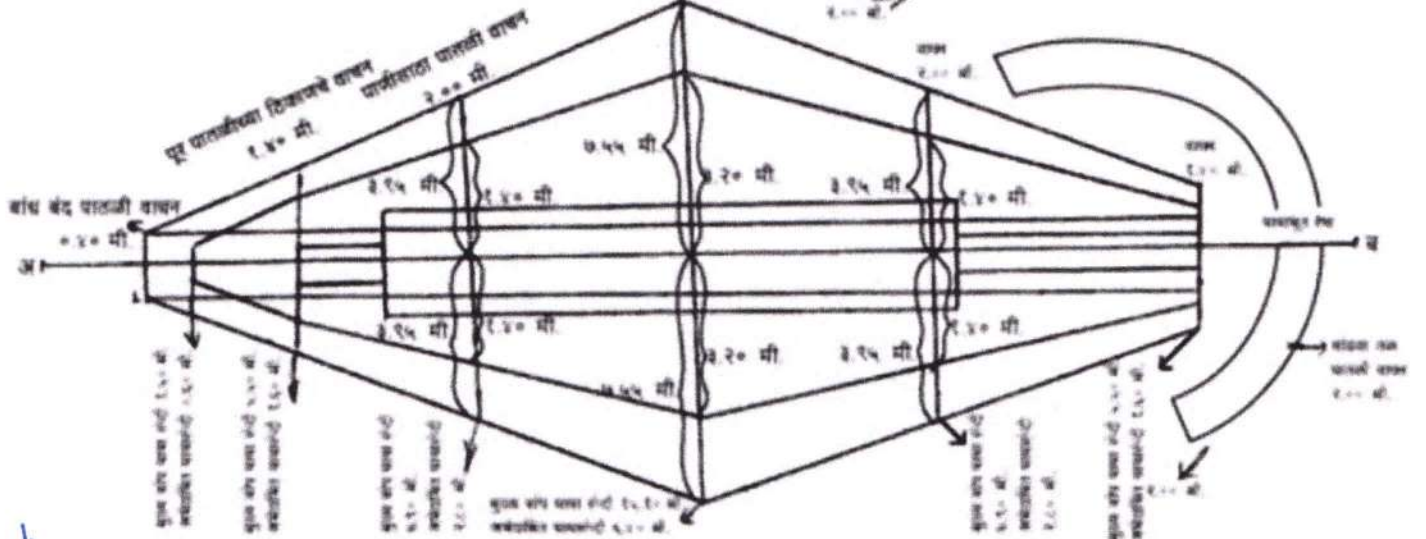


उदाहरण -

नाला प्रवाह भागातील वाचन

३.८० मी.

काम १.०० मी.



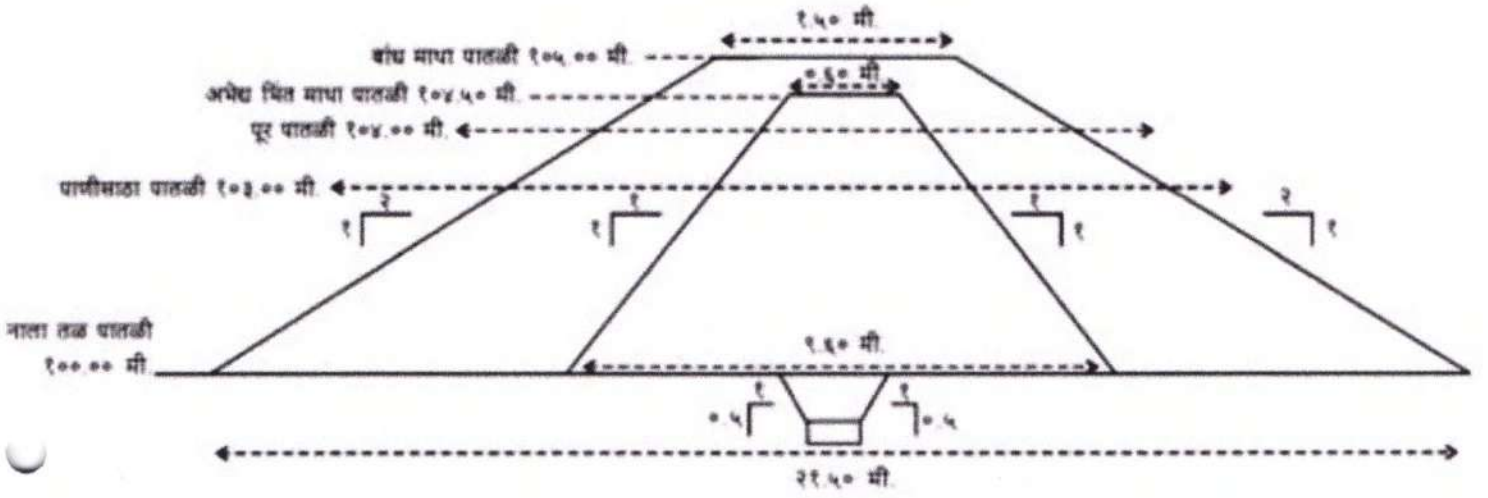
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उप-विभागीय पथक क्र. ६
नंदुरबार

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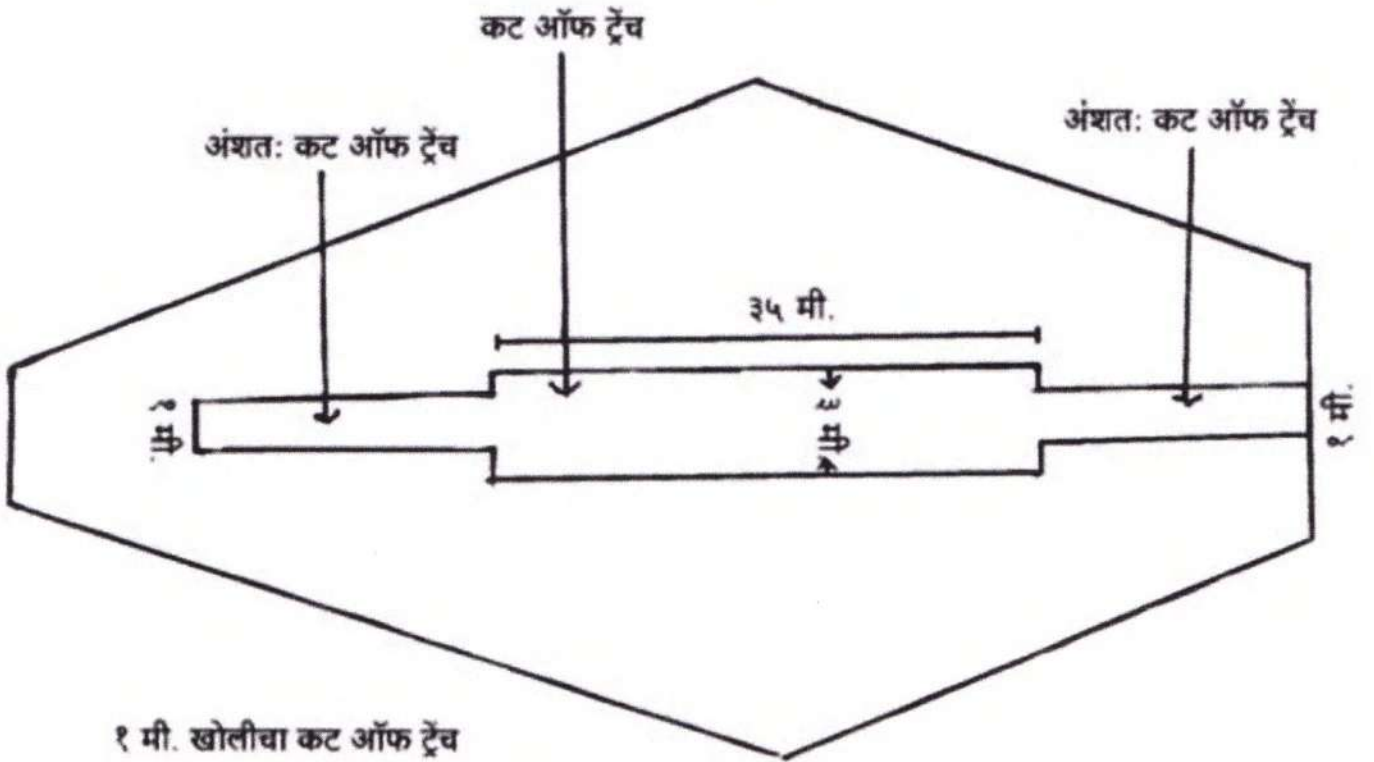
माती नालाबांधाचे संकल्पचित्र

मॉडेल क्र. ७

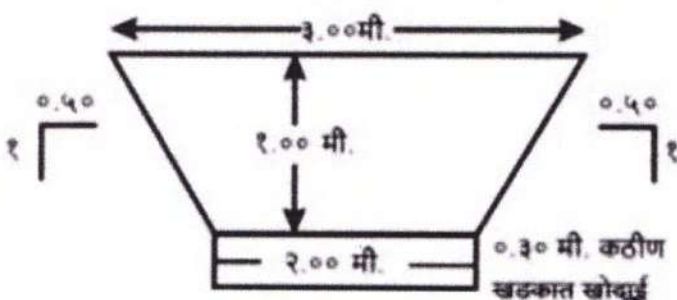
पाणीसाठा उंची ३.०० मी.



कट ऑफ ट्रेच



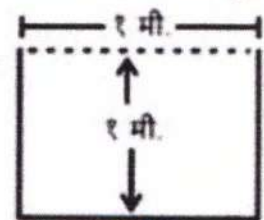
१ मी. खोलीचा कट ऑफ ट्रेच



उदाहरण -

- १) मॉडेल ३ ते ७
- २) १.०० मी. वर कठीण खडक

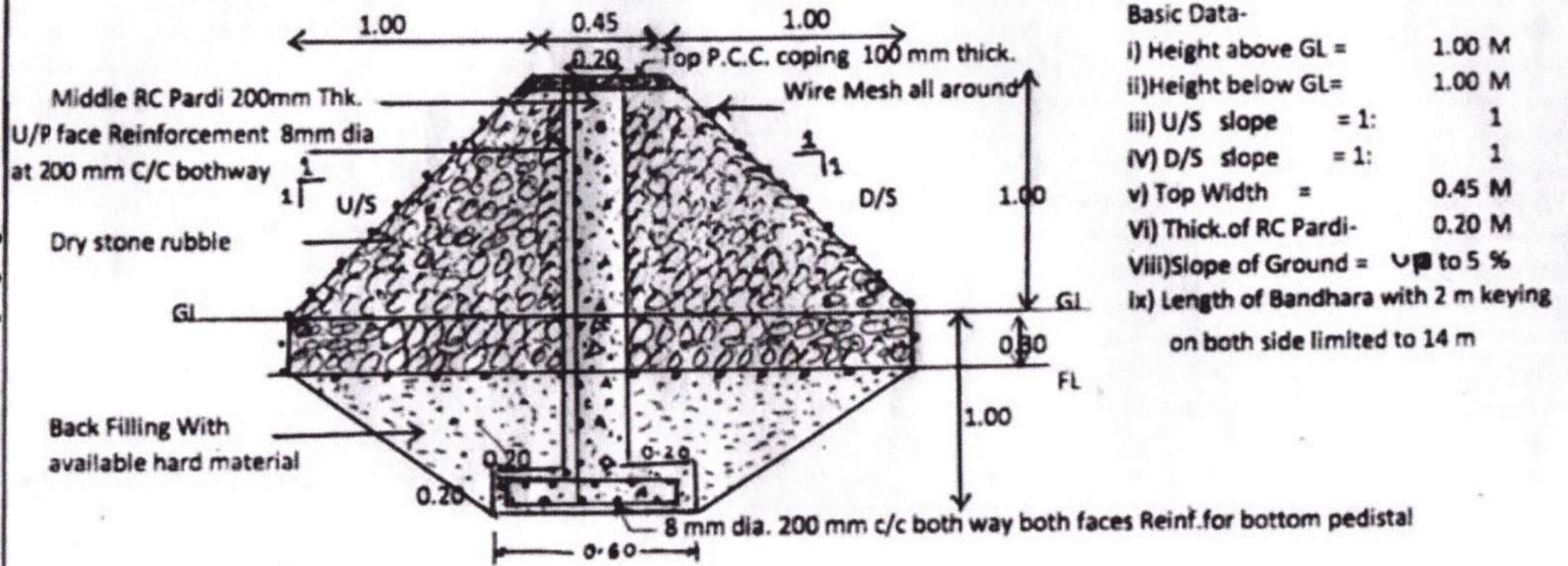
अंशतः कट ऑफ ट्रेच



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



Cross-Section Of Composite Gabian bandhara with RC Pardi

Man
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Bhavar
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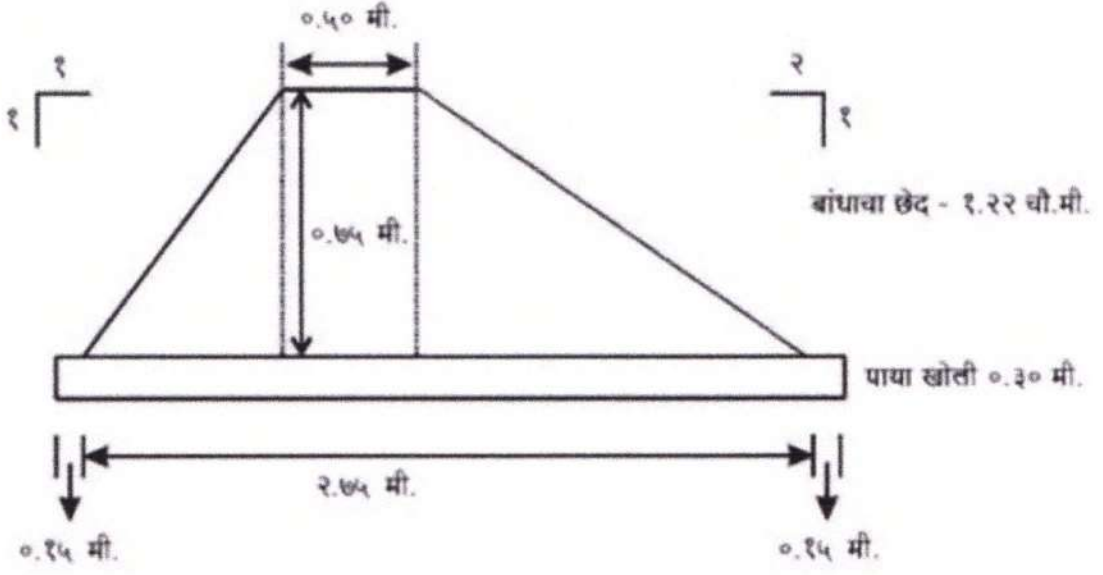
4

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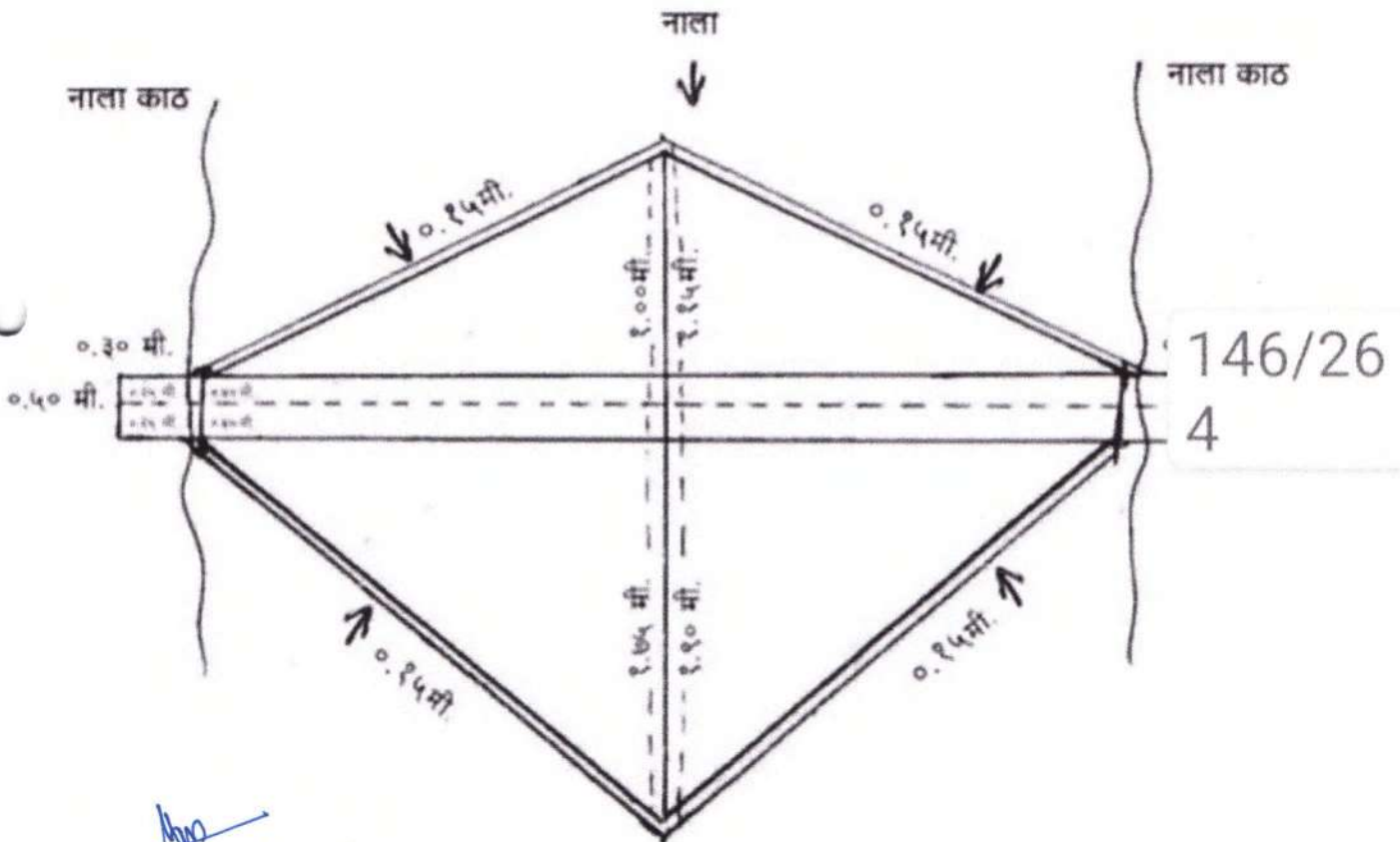
अनघड दगडी बांधाचे संकल्पचित्र

५ ते १५ % उतारगट

अ) पाणलोट क्षेत्राचा वरचा भाग (अप्पर रीचेस)



पायाचे संकल्पचित्र

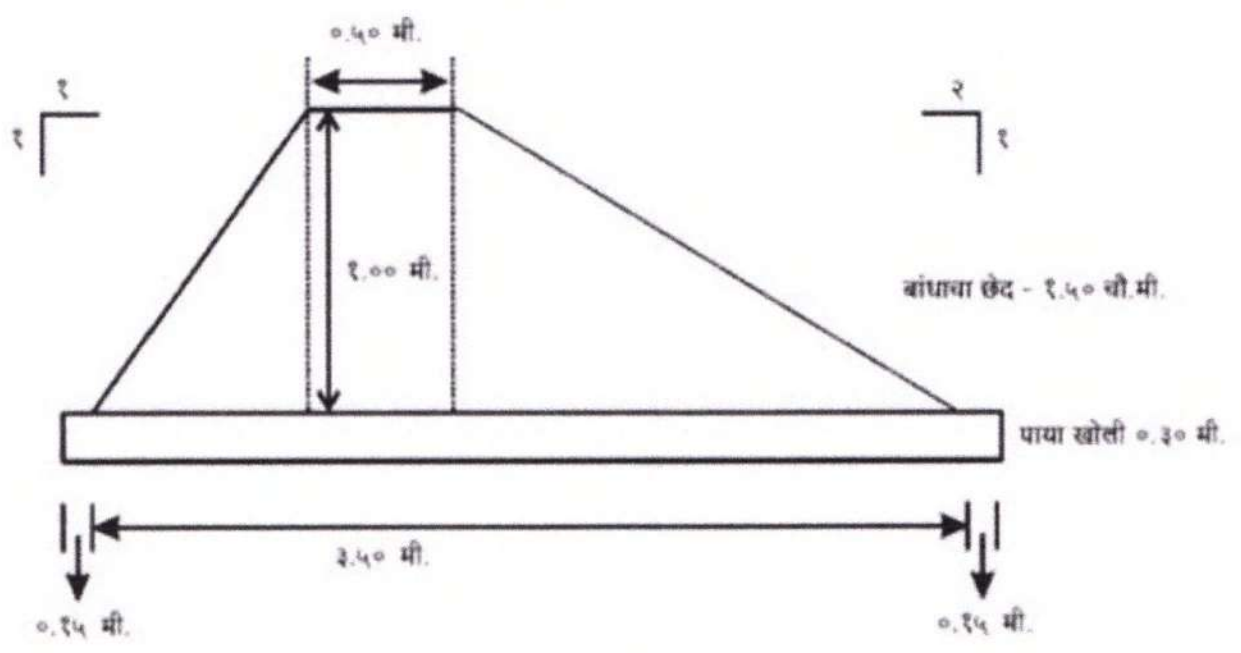


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उप-विभागीय पथक क्र. ६
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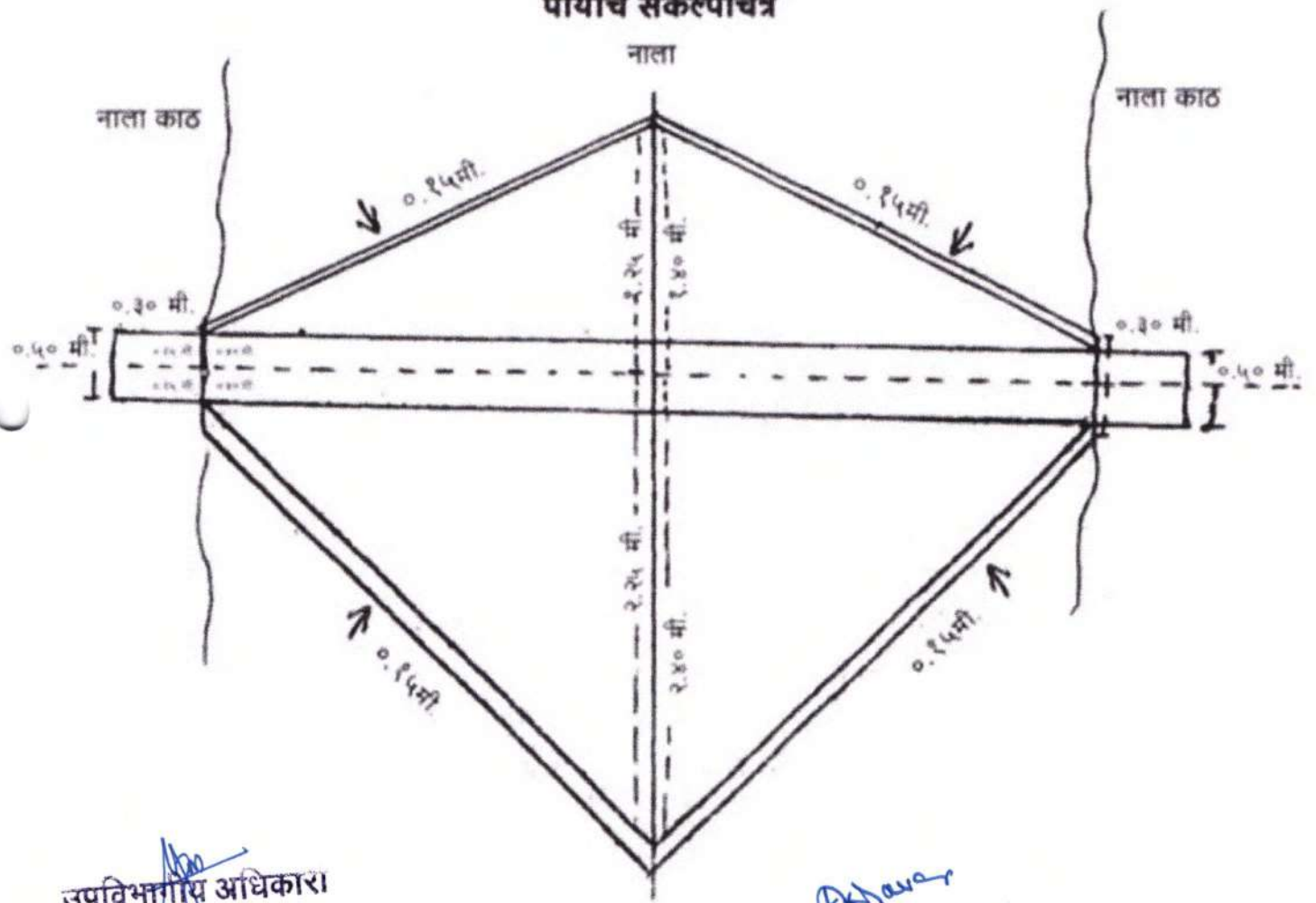
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Nandurbar Forest Division, Nandurbar

f

५ ते १५ % उतारगट
ब) पाणलोट क्षेत्राचा मधला भाग (मिडल रीचेस)



पायाचे संकल्पचित्र



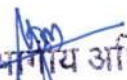
उपविभागीय अधिकारी
उप-विभागीय पथक क्र. ६
नंदुरबार

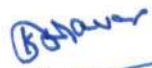
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Nandurbar Forest Division, Nandurbar

बिमेंट नाला बंधावा

संजय निकम शेत. भोन्ने, ता. मंळवेडा, जि. सोलापूर

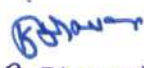



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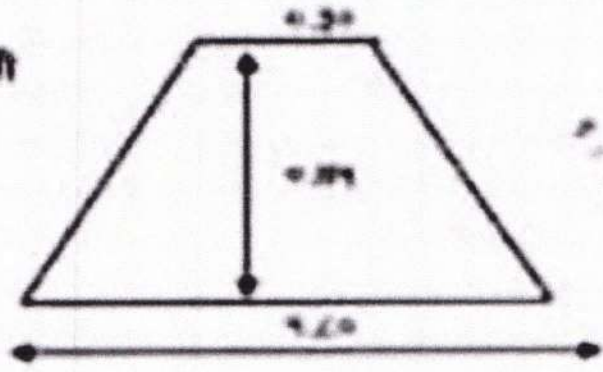
कम्पाटमेंट बंडींग

(1)

ऊंचाई = 30 व टुकड़े समताली

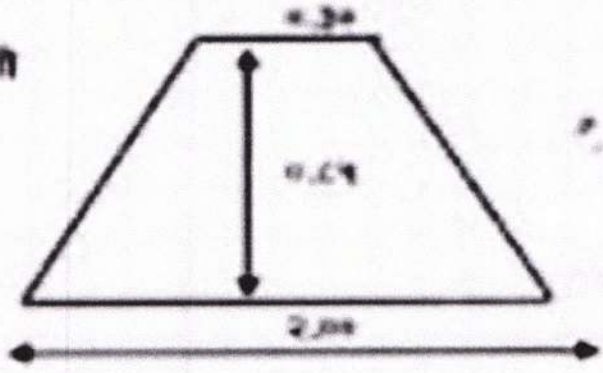
हल्की जमीन - बांधाचा छेद

बांधाचा छेद = 0.50 चौमी



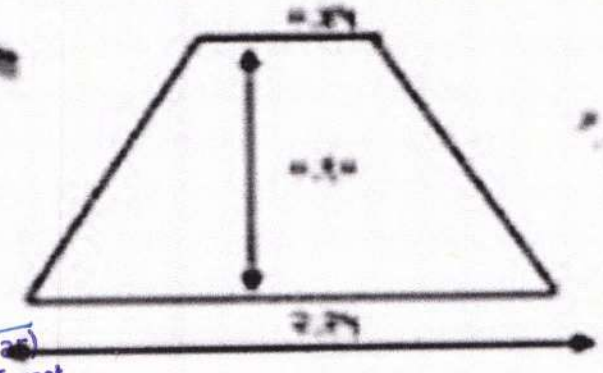
मध्यम जमीन - बांधाचा छेद

बांधाचा छेद = 1.00 चौमी



भारी जमीन - बांधाचा छेद

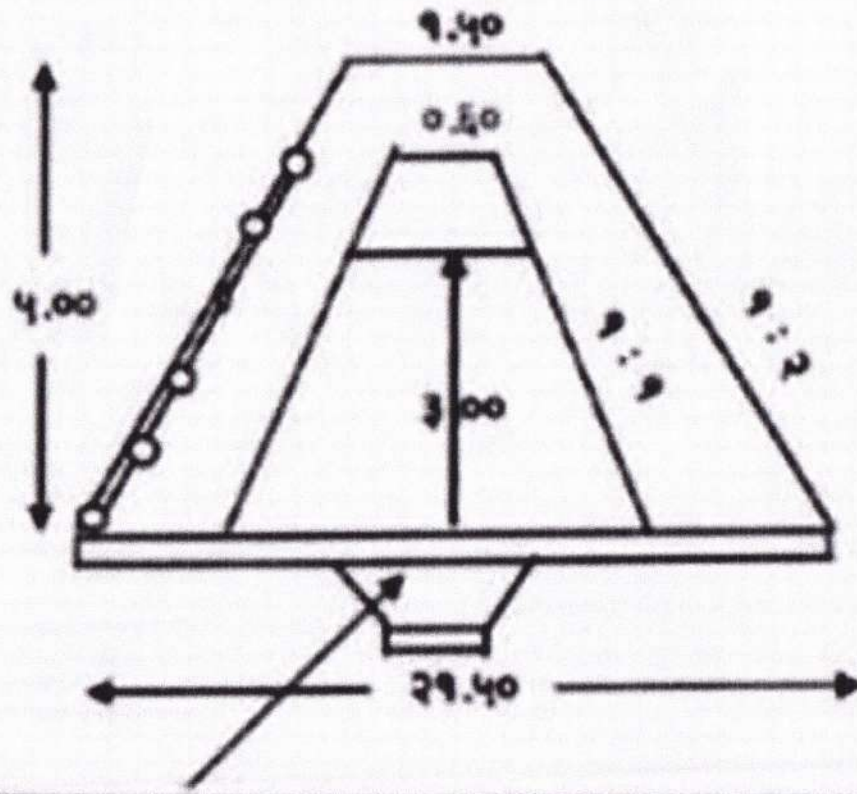
बांधाचा छेद = 1.20 चौमी



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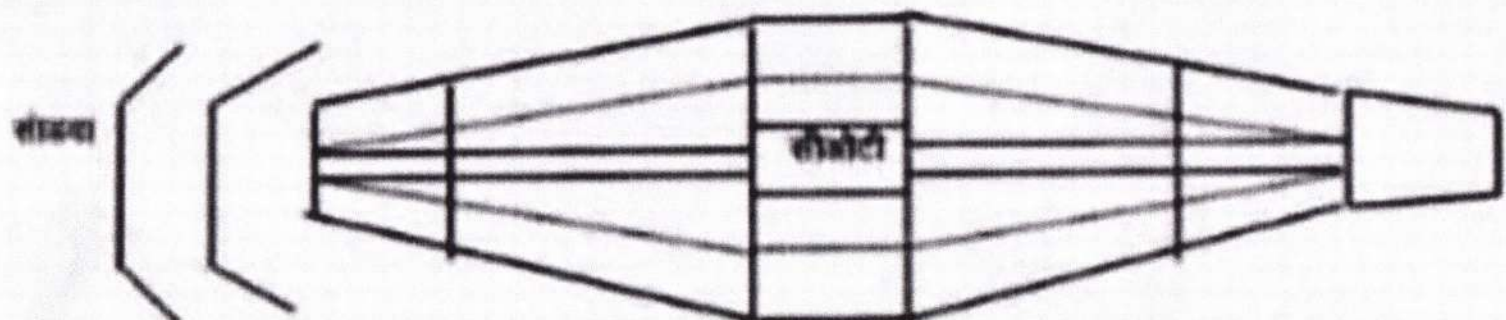
नाला बांधाच्या छेदाचा नकाशा घाती नाब



नपरील	पातळी	उंची	रुंदी
बांधाचा माथा -	40.00	1.00	1.40
पाणी जाडी -	49.00	1.00	4.40
पाणी माठा -	42.00	3.00	1.40
बांधापातळी -	44.00	0	21.40
नि. बांध लांबी -	40	उत्तर	1:2
अभेद्यमित लांबी -	44	उत्तर	1:2
माथाळुंदी नि- बांध	1.40	अ.मित -	1.00
एकूण उंची -	4.00	पाया खोली	0.20
सर काटणे -	37	1.00	1.00
बीएम - १	40.00	बीएम - २	47.60

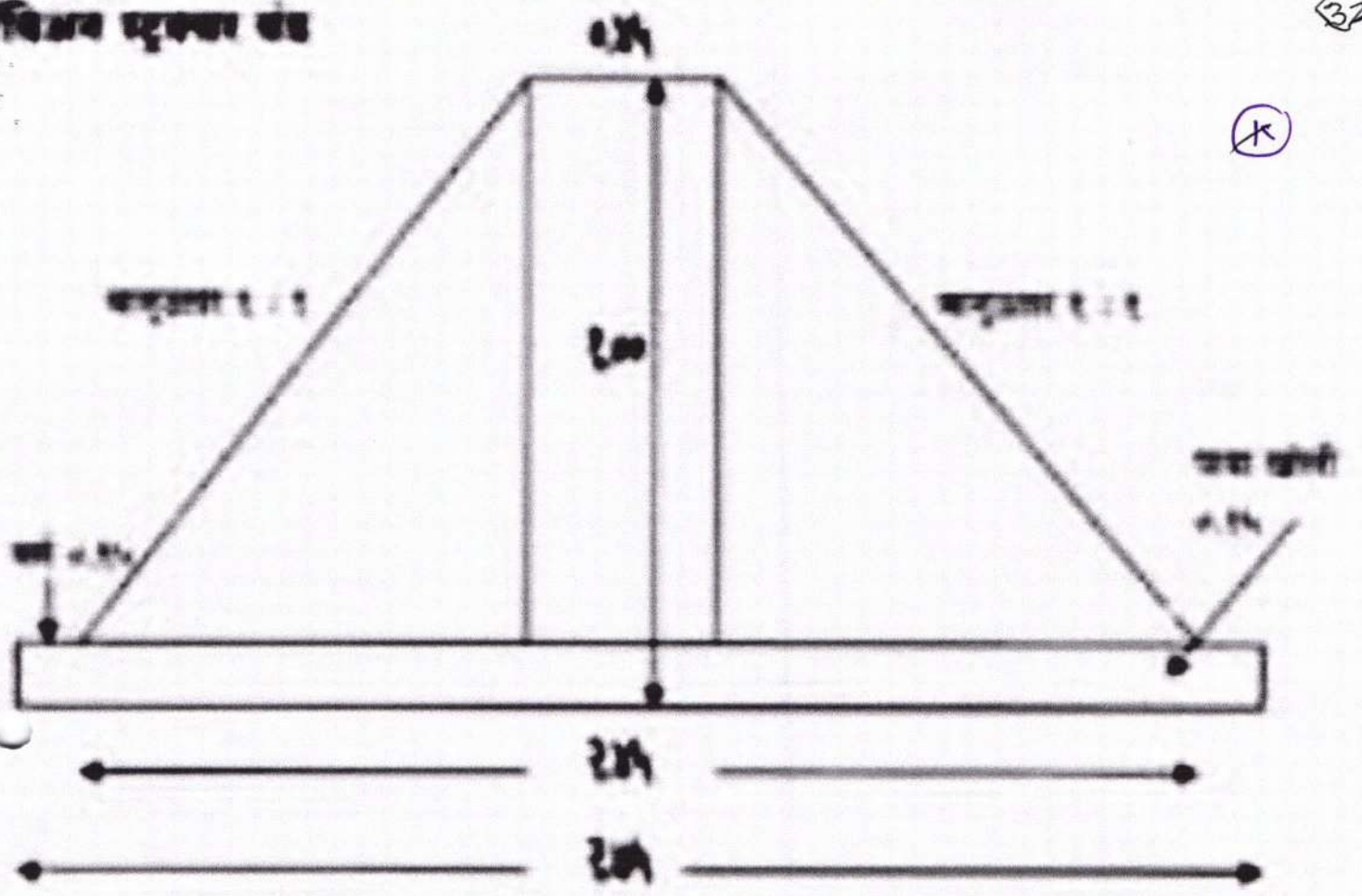
सीओटी काटणे -	लांबी	रुंदी	खोली
तळ २ रु. १ मी	4.00	3:20	1.20


पायाच्या छेदाचा नकाशा



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

(K)




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 उप-विभागीय पथक क्र. ६
 नंदुरबार


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

Evaluation of forest losses as per parameters in table-B

Parameter-1 Ecosystem services losses due to proposed forest diversion

Total forest land to be diverted is 73.94 ha. 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.

Particulars	Area		NPV Rate	Amount
Dam	73.94	x	1228590	90841945

$$= 90841945$$

$$\text{Rs. } 908.41 \text{ Lakhs}$$

Parameter-2 Loss of animal husbandry productivity, including loss of fodder

Estimated loss of animal husbandry productivity due to diversion of 73.94 ha. of forest land @ 10% of NPV which will be Rs 655.84 Lakh

$$10\% \quad x \quad 90841945 \quad = \quad 9084194.5$$

$$\text{RS. } 90.84 \text{ Lakhs}$$

Parameter-3 Cost of human resettlement

Cost of Rehabilitation is involved as no Household rehabilitation is needed in this project

$$\text{Loss of human settlement} = 0 \text{ Lakhs}$$

Parameter-4 No Loss of public facilities and administrative infrastructure (Roads, electric lines, houses, etc) on forest land, which would require forest land if these facilities were diverted due to the project and water supply scheme of Nawapur Industrial supply water supply scheme are affected by this project. There will be loss involved on this account.

$$0.00 \text{ Lakhs}$$

Parameter-5 possession value of forest land diverted.

30% of NPV = 655.84 Lakhs

$$30\% \quad x \quad 908.41 \quad = \quad 272.52 \text{ Lakhs}$$

Parameter-6 Cost of suffering to oustees : NIL

Parameter-7 Habitat fragmentation cost

This project involves forest land along river bank, nalla bank which is habitat for various wild animals and birds found in that area . But there is no Tiger project , no National park , no Wildlife sanctuary and no ecosensitive zone of protected area . habitat fragmentation cost calculated as 50% of value of maximum Net Present value realized for this project and which comes out to Rs. 655.84 Lakh

$$50\% \quad x \quad 908.41 \quad = \quad 454.205 \text{ Lakhs}$$

Parameter-8 Compensatory afforestation and soil & moisture conservation cost

As the project area is 74.94 ha and this being a State Government project the compensatory afforestation will be taken on suitable land in possession of Revenue Department i.e 74.94 ha of land . This compensatory Afforestation will be raised and maintained for period of 10 years at the cost of User Agency calculated at prevailing wage rates of forest Department and which comes out to Rs.766556 Lakhs

$$74.94 \quad \times \quad 766556 \quad = \quad 57445707$$

Rs 57.44 Lakhs

Evaluation of benefits from the project as per parameters in table-C

Parameter-1 Increase in productivity attribute to the specific project. These rates are from the approved First administrative approved estimate

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
Rs. 1400.00 Lakhs

b) It is proposed to develop fisheries produced reservoir, The average reservoir area between F.S.L. 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 = 6.93 x 50 x 87.00 x 8.10 =Rs. 2441.78 Lakh
Rs. 2441.78 lakhs

c) Animal husbandry produce 10 % of NPV = 908.41 x 10% = 90.41
Rs. 90.41 Lakhs

Parameter-2 Benefits to economy due to 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.

$$50\% \quad \times \quad 1400 \quad = \quad 700 \text{ Lakhs}$$

Parameter-3 Number of population benefited due to specific project.

Overall 4 villages are to be benefited in the command area due to this project. Total population of these villages is 70000 persons total number of families benefited will be @17415 family. Assuming increase 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.

$$50000 \quad \times \quad 17415 \quad \times \quad 50 \quad = \quad 43537500000$$

Rs 4353 lakhs

Parameter-4 Economic benefit 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 monetary terms the employment potential will be 80 Lakhs.

$$30\% \quad \times \quad 3382.6 \quad = \quad 1014.78 \text{ Lakhs}$$

b) Employment generated after construction.

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. $280 \times 994 \times 50 = 1391$ Lakhs

$$50 \times 280 \times 994 \times 50 = 13916000$$

Rs. 1392 Lakhs

c) Drinking water Benefits (As per approved First administrative approval estimate)
for $5.2272 \text{ M.cum} \times 0.232 \times 10 = 12.12$ Lakhs per year $\times 50$ Years = Rs.606.35 Lakhs Rs. 606.35 Lakhs

Parameter-5 Economic benefits due to Compensatory afforestation.

The compensatory afforestation will be raised over the land of 73.94 ha. assuming 30% as benefit occurring through Compensatory Afforestation Which comes out to Rs. 71.15 lakh. @ 30% = **21.34 Lakhs**

$$71.15 \times 30\% = 21.34 \text{ Lakhs}$$

CALCULATIONS OF BENEFIT COST RATIO

Total cost (as per table -B Calculation)	=	Rs	1783.42 Lakhs
Total Benefits (as per table -C Calculation)	=	Rs	12211.42 Lakhs
Hence, Benefit/Cost ratio	=		<u>6.85</u>

(Signature)
Executive Engineer,
Jalgaon Medium Project Division No. 2,
Jalgaon

Government of India
Ministry of Environment, Forest and Climate Change
(Forest Conservation Division)

Indira
Paryavaran Bhavan, Aliganj, Jorbagh Road
New Delhi-110 003
Date: 6th January, 2022

To

The Additional Chief Secretary (Forest)/Principal Secretary (Forest),
All States Governments/ Union Territory Administration

Sub: Revision of rates of Net Present Value – reg

Sir,

I am directed to invite your attention to Hon'ble Supreme Court's order dated 28.03.2008 in Writ Petition (Civil) No. 202 of 1996 in the matter of T. N. Godavarman Thirumalpad vs. Union of India and Ministry' guidelines dated 05.02.2009 wherein rates to Net Present Value (NPV) to be realized in lieu of diversion of forest land have been fixed based on the outcome scientific assessment of ecosystem goods and services. Hon'ble Supreme Court in the said order has also directed the MoEF&CC for upward revision of the NPV rates.

2. In compliance of order dated 28.03.2008 of Hon'ble Court and with the approval of the competent authority, the following revised NPV rates have been prescribed for levying NPV in lieu of diversion of forest land:

Table: Revised NPV rates based on fitment factor of 1.53

(in Rs.)

Eco-Class	Very Dense	Dense	Open
Class-1	1595790	1436670	1116900
Class-II	1595790	1436670	1116900
Class-III	1357110	1228590	957780
Class-IV	957780	861390	670140
Class-V	1436670	1292850	1005210
Class-VI	1516230	1372410	1069470

Net Present Value
(Dy. C.F. Certificate)

CERTIFICATE

Certificate that 73.94 ha of forest area required for "Kareghat M. I. Tank" Tal.Navapur Dist.Nandurbar Project laying in Gut Nos.41A, 42A, & B of village Kareghat as fixed by forest Department for the area 73.94 ha fall in plantation, Development working Circle and has overall density is Above 70%. It is also certified that amount of Net Present Value of forest land calculated for Rs.(9,08,41,944/-) Nine Crore Eight Lakh Fourty One Thousand Nine Hundred and Fourty Four (Rupees Only) is exactly as per the rates and calculation provided in the Government Resolution File No.5-3/2011-FC(Vol-I) Dated 06.01.2022 of Government of Maharashtra.

Place : Nandurbar

Date : 03/03/2023

K.B. Bhavar
(K.B. Bhavar)
Dy.Conservator of Forest
Nandurbar Division Nandurbar

CERTIFICATE

(27) (26)

Certified that the An area in column No.3 of the table below is made available as non forest land of village Sutare, Saterpada Tal. Sakri Dist. Dhule as shown in column No.4 of the table below as an alternative land for the Forest land involved in the Project mentioned in the column No.1&2 for the said table as per government memo No. Jamin/38200/1493/15/dt. 2/11/2000

Sr. No	Agency	Name of Project	Alternative land Required H.R.	Land made Available
1	Executive Engineer M.I. Dn Dhule	M.I. Tank Kareghat tal. Navapur	91.26	Sutare out of 117 H. 77.24 R. Saterpada out of 83 H. 14.02 R. 91.26
2	---	M.I. Tank Ichchagavhan Tal Taloda	42.77	Saterpada out of 83 H. 42.77 R.
		Total	134.03	134.03

No. B-Desk/2/Lnd/ws/130
Collector office Dhule
Dated 18/3/2004.

Suband
Collector Dhule



Suband
Executive Engineer
Mandurbar Medium Project
Divisional Unit Mandurbar

27
28

0710

फेरफारांची नोंदवही (फेरफार पत्रक)

[महाराष्ट्र जमीन महसूल अधिकारी अधिनियम आणि नोंदवहीपा (तुमारे करणे व सुस्थितीत ठेवणे) नियम, १९७१ यातील दि
गाव : मुतारे तालुका : खानडी जिल्हा : पुणे

नोंदोना अनुक्रमांक	पांगाडज केलेल्या अधिकाराचे स्वल्प				परिणाम झालेले गूमापन व उपविभाग क्रमांक	चाचणी अर्ज आवाक्षरी
	नॉट नॉलर	नॉट नॉलर	नॉट नॉलर	नॉट नॉलर		
	53/1	53/2	53/3	53/4		
	63/2-3	63/2क	86/1-1	86/1क		
	63/2-4	63/2ड	86/1-2	86/1ल		
	64/3-1	84/3-3	88/2-1	88/2क		
	64/3-2	84/3क	88/2-2	88/2ल		
	80/2-1	80/2क	88/3-1	88/3क		
	80/2-2	80/2ल	88/3-2	88/3ल		
	80/3-1	80/3क	88/4-1	88/4क		
	80/3-2	80/3ल	88/4-2	88/4ल		
	80/4-1	80/4क	94/2क	94/2ल		
	80/4-2	80/4ल	94/2ड	94/2व		
	115/3-1	115/3क	95/2-1	95/2क		
	115/3-2	115/3ल	10/2-1	10/2क		
	117/1क	117/1ल	10	10/2		
			10/1	10/1क		
			10/2	10/1ल		
			10/3	10/1ड		

वरील प्रमाणे १९९४ १९९५ आदी

(ओ.एस.के.ए. गौरे) मुतारे
तालुका

326	दिनांक 2-4-2004 मंगळीलाधिकारी साहेब साहेब गौरे कुर्बे कोरेशा मुतारे सा. डिवस/२/एव (१) ५०/३००५/१०५/१०५ 1307 दिनांक 18-3-04 सा. सा. कु. प. सा. मु. स 919/2004 लुधु पाटल व गौरे पिता कुर्बे दिनांक 22-3-2004 लुधु पिता गौरे लुधु पाटल सा. सा. सा. गौरे कुर्बे मुतारे/सा. सा. सा. 284/2004 सा. सा. दि 31-3-04 सा. सा. सा. सा.	
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फेरफारांची नोंदवही (फेरफार पत्रक)

[महाराष्ट्र जमीन महसूल अधिकारी अभिलेख आणि नोंदवह्या (तुम्हार करणे व सुस्थितीत ठेवणे) नियम १९५९ यातील नियम १०]
 गाव: खुलार तालुका: साक्री जिल्हा: धुळे

नोंदीचा क्रमांक	संपादन केलेल्या अधिकाराचे स्वरूप	परिणाम झालेले भूमापन व उपविभाग क्रमांक	चाचणी अधिकार्याची आघादरी निम्बा शेर
	07		
	खुलार ग्रॅन्ड ज. ७. 11) क्षेत्र) - 24 "खुलारण" ही शेता जमिनी ल. वा. मो. द्वारे प्राप्त झाल्यामुळे या पयामि वहीकरण म्हणून वळविभागाच्या नोंद वही (दुळे) मालमसुद्धे पुढे पाठविले केलेले आहे. गुन्हाचलण हे पुढे पाठविले फेरफार करणे वळविभागाच्या नोंद वही (आदेश 118 व 119)	खुलार 117/1/1 39 - एक मात्र	
			तलाठी मीजे - खुलार ता. साक्री जि. धुळे दि. 6/1/2021
32)	दिनांक 10-4-2004 म. उपविभागाच्या अधिकारी दुळे गावा दुळे गांवे स्थानिक आर. टी. लाव अर्जात क्र. 60/2000 दुळे दिनांक 31-3-2004 व गा. आंधार जोडला अधिकारी सो. दुळे. गांवे स्थानिक आर. टी. क्र. आर. टी. लाव अर्जात क्र. 21/2004 दुळे दिनांक 31-3-2004 व लगरा म. तहसिलदार सो. साक्री क्र. दुळे वही वही क्र. वि. 1434/2003 सहाजी दिनांक 9-10-2003 काठवणे जोडले मुलारे अधिकारी ज. 3/1 क्षेत्र 2148 पर. क्र. 0-1) आंधार 1-25 गा वळविभागाच्या नोंद वही फेरफार जोडले क्र. 274 दिनांक 27-12-18-या.	गा. 3 काठवणे 531/1/अ 531/1/ब 531/1/ग चरिते वही वही खुलार वही वही काठवणे 531, दुळे मात्र.	

CHECK LIST ITEM NO.--12

Suitability certificate from Dy. C.F.Dhule, that the non forest land is suitable for raising tree species.

This is to certify that, the non forest lands listed below are selected as alternative non forest land in connection with **KAREGHAT MINOR IRRIGATION PROJECT**, Tahsil Nawapur, District Nandurbar is found suitable for compensatory Afforestation and this area is free from encroachment and is also found free from any rights and encumbrancement there on from the agency and from any other dues.

Sr. No	District	Tashil	Village	Gut No	Total Area in Ha.	Area transferred in ha.
1	Dhule	Sakri	Sutare	117	77.24	77.24
2	Dhule	Sakri	Sattar Pada	83	74.82	14.02
Total						91.26

Place : Dhule

Date :-

11 2 APR 2004


(M.N.Gavali)
Deputy Conservator of Forest
West Dhule Division,
Dhule