

Ref: EMMRL/Bandha/FC-I/2024-25/72

Date: 02nd April 2025

To,

Divisional Forest Officer (DFO)
Singrauli, Madhya Pradesh

Sub: Submission of FC-1 Compliance w.r.t. Bandha Coal Mines allotted to EMIL Mines and Mineral Resources Limited (EMMRL)

Ref: Statement of Compliance to Conditions stipulated in “In-Principle Approval” accorded U/s 2(ii) of Forest (Conservation) Act 1980 [presently Van (Sanrakshan Evam Samvardhan) Adhinyam, 1980] by MoEF & CC vide No- 8-17/2023-FC dated 01.10.2024 in favour of Bandha OCP Coal Mine of M/s. M/s EMIL Mines & Mineral Resources Limited for diversion of 807.917 Ha. of Forest Land for non-forestry use under Singrauli Forest Division, Singrauli District of Madhya Pradesh State.

Dear Sir,

With reference to above, EMMRL Bandha has received FC-I letter from MoEF & CC dated 01st oct 2024 and now we are submitting point wise FC-I compliance in the format below.

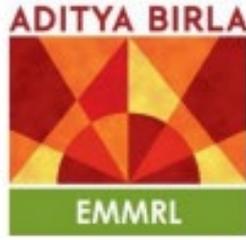
Sl. No.	Conditions	Compliance																								
I	Legal status of the diverted forest land shall remain unchanged;	Legal status of the diverted forest land shall remain unchanged. An Undertaking to this effect is enclosed as Annexure-1 .																								
ii	Compensatory Afforestation:																									
a.	The cost of compensatory afforestation at the prevailing wage rates as per compensatory afforestation scheme and the cost of survey, demarcation, and erection of permanent pillars, if required on the CA land, shall be deposited in advance with the Forest Department by the user agency. The CA will be maintained for 10 years.	<ul style="list-style-type: none">CompliedThe cost of raising and maintaining the Compensatory Afforestation as per the approved CA Schemes along with details of amount deposited in CAMPA fund for different locations for diverting 807.917 Ha of forest area is given in the table below:<table border="1"><thead><tr><th>Location</th><th>Area (Ha)</th><th>Amount Rs (Cr)</th><th>UTR No</th></tr></thead><tbody><tr><td>Katni</td><td>50</td><td>2.77</td><td>N25087573112</td></tr><tr><td>Agar Malwa</td><td>165</td><td>9.59</td><td>N25087573111</td></tr><tr><td>Sagar</td><td>378.36</td><td>18.23</td><td>N25087573110</td></tr><tr><td>Chhatarpur</td><td>220</td><td>17.90</td><td></td></tr><tr><td>Total</td><td>813.36</td><td>48.49</td><td></td></tr></tbody></table> <p>Total amount deposited against CA Schemes for 813 Ha is Rs 48.49 Cr</p>	Location	Area (Ha)	Amount Rs (Cr)	UTR No	Katni	50	2.77	N25087573112	Agar Malwa	165	9.59	N25087573111	Sagar	378.36	18.23	N25087573110	Chhatarpur	220	17.90		Total	813.36	48.49	
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EMIL Mines And Mineral Resources Limited

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E: emmrl.registered@adityabirla.com



	The scheme may include afforestation of indigenous species with appropriate provision for anticipated cost increase for works scheduled for subsequent years;	<p>(Copy of the demand notes and Payment challans is attached as Annexure-2)</p> <ul style="list-style-type: none"> The survey & demarcation of identified CA land in 04 districts have been completed The technically approved CA Schemes including afforestation of indigenous species with appropriate provision for anticipated cost increase for all four locations prepared by respective DFO are attached as Annexure- 3 220 Ha. CA Land out of 593.5 Ha. earlier identified at Sagar was allotted by State Government to Government Agency MPIDC without our information and consent. Hence, 220 Ha. CA Land at Chhatarpur was identified in lieu of earlier identified land at Sagar. The CA Land at Chhatarpur has been transferred and mutated in the name of State Forest Department. 						
b.	The non-forest land identified for raising compensatory afforestation shall be transferred and mutated in favour of the State Forest Department and shall also be notified as RF/PF under IFA, 1927 or any state /local act before granting the Final/Stage-II approval;	<p>The non-forest land identified for raising Compensatory Afforestation has been transferred and mutated in the name of State Forest Department. Copies of Mutation of all districts are attached as Annexure-4.</p> <p>The process of Notifying Non-Forest Land as RF/PF under IFA 1927, is in-progress.</p>						
iii	Net Present Value							
a.	The User Agency shall transfer the funds towards the cost of Net Present Value (NPV) of the forest land being diverted under this proposal in accordance with the MoEF&CC's guidelines dated 6.01.2022 read with guidelines dated 19.01.2022;	<ul style="list-style-type: none"> Complied The cost of Net Present Value (NPV) amounting Rs. 99,16,37,372/- has been deposited in CAMPA fund as per the demand order raised by DFO, Singrauli vide letter no-/tak/6247 dated 08/10/2024. Challan detail is given below <table border="1"> <thead> <tr> <th>UTR No</th> <th>Amount Rs (Cr)</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>RATNH25087026732</td> <td>99.16</td> <td>28/03/2025</td> </tr> </tbody> </table> <p>Enclosed copy of demand note & payment details as Annexure-5</p>	UTR No	Amount Rs (Cr)	Date	RATNH25087026732	99.16	28/03/2025
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<p>b.</p>	<p>At the time of payment of the Net Present Value (NPV) at the present rate, the user agency shall furnish an undertaking to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;</p>	<ul style="list-style-type: none"> Noted. <p>An Undertaking by user agency is enclosed as Annexure-6</p>						
<p>iv</p>	<p>The user agency shall prepare and submit a site-specific Wildlife Management Plan by incorporating the possible movement of elephants, duly approved by CWLW before Stage-II approval and same shall be implemented by the State Forest Department at the cost of user agency;</p>	<ul style="list-style-type: none"> Site- Specific Wildlife Management Plan recommended by the DFO, Singrauli has been approved by the Principal Chief Conservator of Forests (Wildlife) & Chief Wildlife Warden, Madhya Pradesh. Letter No. WL/DM/2022/MINE-140/5344 dated 09/06/2023 from O/o PCCF(WL) & approved Site-Specific Wildlife Conservation Plan are attached as Annexure-7 The cost for implementation of Site-Specific Wildlife Management Plan for implementation within the project impact area amounting to 9.2 Crores (Nine Crores and Twenty Lakhs rupees only) has been deposited in the CAMPA fund account as per the Demand note raised by DFO, Singrauli vide letter No: tak/1792 dated 18th March 2025 <table border="1"> <thead> <tr> <th>UTR No</th> <th>Amount Rs (Cr)</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>N25087573113</td> <td>9.207</td> <td>28/03/2025</td> </tr> </tbody> </table> <p>Demand note & payment details attached as Annexure-8</p>	UTR No	Amount Rs (Cr)	Date	N25087573113	9.207	28/03/2025
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N25087573113	9.207	28/03/2025						
<p>v</p>	<p>The proposed forest land is having two important Nallah/ River tributary i.e. Bandha Nala which comes under the catchment of Sone River and Kachanmuda Nala of which water flows into Rihand Dam are flowing through the mining lease area. The user agency will take up programme for at least 50 meter green belt along the sides of the Nallah from the initial</p>	<ul style="list-style-type: none"> Noted and shall be complied <p>The Scheme/programme for “50-meter green belt along both sides of the nallah from the initial years” is prepared and cost of which is part of Approved Mining plan and Mine closure plan (under Biological reclamation section). The user agency has given undertaking to implement the programme for 50-meter green belt and protection & conservation of nallah’s under the supervision of state forest department.</p>						



	years under the supervision of the State Forest Department and protection and conservation of nullahs will be ascertained.	
vi	As per the component wise breakup, the total rationalized area is mentioned as 77.684 ha over the forest land. In this regard, the user agency shall submit an undertaking that the same shall not be used for any non-site-specific activity or additional infrastructure;	Noted and shall be complied. An Undertaking by user agency is enclosed as Annexure-10
vii	Satellite imagery shows the presence of Metal Road within the proposed forest land for diversion for which it has been informed that Existing road be shifted outside the lease boundary. In this regard the State Govt. shall submit the details along with plan before Stage-II approval;	Approval letter from the state government for diversion of Metal Road passing through the proposed forest land along the lease-hold boundary is attached as Annexure-11
viii	Satellite imagery shows encroachment in few patches proposed for CA for which the State Govt. informed that the land will be handed over to the forest department free from all encumbrances prior to Stage-II approval.	In this regard, identified CA Land has been transferred and mutated in the name of State Forest Department. Few patches at Sagar which were encroached has been replaced by new CA land identified at Chhatarpur which has been transferred and mutated in the name of State Forest Department. The details of which are provided in Table below:



	The State Govt. shall submit the site suitability certificate for proposed CA land free from all encumbrances from the concerned DFO before Stage-II approval	Details of non-forest land changed for CA					
		SL.No	District	Village	Khasra no.	Area (Ha)	Remarks
		1	Sagar	Richhoda	1	100.357	Land Allotted to MIPDC without the intimation and consent of User Agency
		2	Sagar	Maswasi Grant	37/1 Me Se	10.813	
		3	Sagar	Gadhphara Muhal	23	43.52	
		4	Sagar	Gadhphara Muhal	25	20.55	
		5	Sagar	Rakh	307	10	
		6	Sagar	saderi	379	30.28	Signs of encroachment (houses) noticed in the khasra
		Total Land (Ha)				215.52	
		New CA land given in Chhattarpur in-lieu of 215.52 Ha in Sagar					
SL.No	District	Village	Khasra no.	Area (Ha)	Remarks		
1	Chhattarpur	Kasera	13/1/1/1	56	New CA land transferred and Mutated in the name of State Forest Dept.		
2	Chhattarpur	Kasera	26/1/1	134			
3	Chhattarpur	Kasera	364/1/1	30			
Total Land (Ha)				220			
ix	The State Government shall upload the KML files of the area under diversion and the accepted area for raising compensatory afforestation in the e-green watch portal of FSI, before handing over forest land to the user agency;	Noted and complied.					
x	All the funds received from the user agency under the project shall be transferred/deposited in CAMPA account only	Noted and Complied					



	<p>through e-portal (https://parivesh.nic.in/); Amount deposited through other mode will not be accepted as compliance of the Stage-I clearance;</p>	<p>All the funds under the project have been transferred/ deposited in CAMPA account through e-portal (https://parivesh.nic.in/) by the user agency.</p>
<p>xi</p>	<p>The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined-out area. The User Agency shall prepare a detailed plan for 45 years/life of project as per mining plan, clearly linking the progress of mining, and felling of the trees. Felling of trees shall be done, when it is absolutely necessary in phase-wise manner in the areas which become due for mining as per mining plan. The concurrent Reclamation Plan as per the approved Mining Plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual</p>	<p>Noted</p> <p>An Undertaking by user agency is enclosed as Annexure-13</p>



	<p>report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.</p>	
xii	<p>The user agency shall prepare a schedule for surrender of the mined out and reclaimed forest land in accordance with existing mining plan and submit the same along with an undertaking to surrender the mined out and reclaimed forest land as per such schedule to the MoEF&CC before grant of 'Final' approval under the Adhinyam for diversion of the said forest land;</p>	<p>Noted</p> <p>An Undertaking by user agency is enclosed as Annexure-14</p>
xiii	<p>The rehabilitated forest area after closure of mining operations shall be handed over to the State Forest Department for sustainable forest management in the future;</p>	<p>Noted</p> <p>An Undertaking by user agency is enclosed as Annexure-15</p>



xiv	Safety Zone Management: Following activities, at project cost, shall be undertaken by the user agency for the management of safety zone as per relevant guidelines issued by the Ministry's guidelines	
a.	User agency shall ensure demarcation of safety zone (7.5-meter strip all along the inner boundary of the mining lease area), and its fencing, protection, and regeneration by erecting adequate number of 6 feet high RCC boundary pillars inscribed with DGPS coordinates with barbed wire fencing and deploying adequate number of watchers under the supervision of the State Forest Department;	<ul style="list-style-type: none"> • Noted & shall be complied An Undertaking by user agency is enclosed as Annexure-16
b.	Boundary of the safety zone of the mining lease, adjacent to habitation/roads, should be properly fenced by the user agency;	<ul style="list-style-type: none"> • Noted & shall be complied An Undertaking by user agency is enclosed as Annexure-17
c.	Safety zone shall be maintained as green belt around mining lease and to ensure dense canopy in the area, regeneration shall be taken up in this	<ul style="list-style-type: none"> • Noted & shall be complied An Undertaking by user agency is enclosed as Annexure-18



	area by the user agency at project cost under the supervision of the State Forest Department;	
d.	The State Government and the user agency shall ensure that safety zone is maintained as per the prescribed norms;	<ul style="list-style-type: none"> Noted & shall be complied An Undertaking by user agency is enclosed as Annexure-19
xv	Following activities, as per approved plan / schemes, shall be undertaken in the lease area by the User Agency under the supervision of the State Forest Department:	
a.	Mitigative measures to minimize soil erosion and choking of stream shall be implemented within a period of three year with effect from the issue of 'Final' approval in accordance with the approved Plan/Scheme in consultation with the State Forest Department;	<ul style="list-style-type: none"> Noted & shall be complied Scheme on mitigative measures to minimize soil erosion and choking of stream has been prepared and the cost of which is part of Approved Mining Plan & Mine Closure Plan and an undertaking by user agency is attached as Annexure-20
b.	Planting of adequate drought hardy plant species and sowing of seeds, in the appropriate area within the mining lease to arrest soil erosion in accordance with the approved Plan/scheme;	<ul style="list-style-type: none"> Noted & shall be complied Scheme on Planting of adequate drought hardy plant species and sowing of seeds, in the appropriate area within the mining lease to arrest soil erosion has been prepared and an undertaking by user agency is attached as Annexure-21
c.	Construction of check dams, retention /toe walls to arrest sliding down of	<ul style="list-style-type: none"> Noted & shall be complied Scheme on Construction of check dams, retention /toe walls to arrest sliding down of the excavated material along the contour has been



	the excavated material along the contour in accordance with the approved Plan/Scheme;	prepared and an undertaking by user agency is attached as Annexure-22
d.	Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that angles of repose at any given place is less than 28°;	<ul style="list-style-type: none"> Noted & shall be complied Scheme to Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, to ensure that angles of repose at any given place is less than 28° has been prepared and an undertaking by user agency is attached as Annexure-23
e.	No damage shall be caused to the top-soil and the user agency will follow the top soil management plan.	<ul style="list-style-type: none"> Noted & shall be complied Topsoil management plan and its cost is part of Approved Mine Planning and Mine Closure Plan. The user agency gives an undertaking to the implement the recommended practices for Topsoil Management. and an Undertaking to implement by user agency is attached as Annexure-24
xvi	The validity of approval granted under the Adhinyam shall be for a period coterminus with the validity of the mining lease proposed to be granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended from time to time or Rules framed there under, or for such period as may be specified by the Central Government;	<ul style="list-style-type: none"> Noted & shall be complied
xvii	The User Agency either himself or through the State Forest Department shall undertake gap planting and soil and moisture conservation	<ul style="list-style-type: none"> The northern and eastern boundary of Bandha coal block shares a common boundary with Bandha North and Amelia coal block allotted to M/s JPVL and THDCIL. The forest compartment {RF: 389, 390,391,392) in the southern and {RF: 319, 320,293, PF: 316) in western part of Bandha Coal block are having crown density greater than 0.4 as per current



	activities to restock and rejuvenate the degraded open forests (having crown density less than 0.40), if any, located within the periphery of 100 m from outer perimeter of the mining lease as per approved plan for plantation and SMC activities submitted along with compliance of 'in-principle' approval;	working plan of Singrauli, hence the scheme may not be required. Letter to this effect from DFO Singrauli is attached Annexure-25
xviii	The User Agency shall regularly undertake desilting of village tanks and other water bodies, located within five km from the mine lease boundary, as per approved plan, to mitigate the impact of project on such tanks/water bodies;	<ul style="list-style-type: none"> • Noted & shall be complied • Scheme on "De-silting of these village tanks and other water bodies to mitigate the impact of siltation of such tanks/water bodies has been prepared and an undertaking to implement the scheme is given by user agency and is herewith attached and marked as Annexure-26
xix	The User Agency shall comply with the Hon'ble Supreme Court order on re-grassing, and re-grass the mining area and any other areas which may have been disturbed due to mining to restore them to a condition which is fit for growth of fodder, flora, fauna, etc. in a timely manner;	<ul style="list-style-type: none"> • Noted & shall be complied <p>An Undertaking by user agency is enclosed as Annexure-27</p>
xx	Adequate care shall be taken to check any rolling of overburden/dumps beyond the designated	Noted & shall be complied



	area and to check soil erosion caused due to mining activities;							
xxi	The user agency shall undertake de-silting of the village tanks and other water bodies located within five km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/water bodies, whenever required	<p>Noted & shall be complied</p> <ul style="list-style-type: none"> Scheme on “De-silting of these village tanks and other water bodies to mitigate the impact of siltation of such tanks/water bodies has been prepared and an undertaking by user agency is attached as Annexure-26 						
xxii	The User agency will undertake comprehensive soil conservation measures at the project cost in consultation with the State Forest Department. A scheme of the same shall be submitted to the Regional Office along with the ‘in-principle’ approval;	<ul style="list-style-type: none"> Scheme for comprehensive soil conservation measures at the project cost prepared by DFO Singrauli and approved by Nodal officer is attached as Annexure- 28 Cost towards the same has been deposited by the user agency in CAMPA fund account as per demand note raised by DFO Singrauli vide letter No: tak/2272 dated 28th March 2025. Details in the table below: <table border="1"> <thead> <tr> <th>UTR No</th> <th>Amount Rs (Cr)</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>RATNN25088256646</td> <td>5.99</td> <td>29/03/2025</td> </tr> </tbody> </table> <p>Copy of demand note and payment details is attached as Annexure-29</p>	UTR No	Amount Rs (Cr)	Date	RATNN25088256646	5.99	29/03/2025
UTR No	Amount Rs (Cr)	Date						
RATNN25088256646	5.99	29/03/2025						
xxiii	Under no circumstances, approval granted for the use of forest land for underground mining, shall subsequently be converted to opencast mining operations.	<ul style="list-style-type: none"> Noted & shall be complied 						
xxiv	The R&R Plan shall be implemented as per the R&R Policy of State Government in consonance with National R&R Policy, Government of India before the	<ul style="list-style-type: none"> Noted & shall be complied R&R Policy Bandha approved by Divisional Commissioner, Rewa attached as Annexure-30 						



	commencement of the project work and implementation. The said R&R Plan will be monitored by the State Government/Regional Office of MoEF&CC along with indicators for monitoring and expected observable milestones	
xxv	The user agency shall explore the possibility of translocation of maximum number of trees identified to be felled;	<ul style="list-style-type: none"> • Noted & shall be complied
xxvi	The cost of felling of trees shall be deposited by the User Agency with the State Forest Department	<ul style="list-style-type: none"> • Noted & shall be complied
xxvii	The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;	<ul style="list-style-type: none"> • Complied • Environmental clearance has been granted by MoEF & CC, Govt. of India, vide File No- IA-J-11015/54/2021-IA-II (M) dated 19.11.2024. (Attached as Annexure-31)
xxviii	No labour camp shall be established on the forest land and the User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas	<ul style="list-style-type: none"> • Noted & shall be complied An Undertaking is enclosed as Annexure-32
xxix	The boundary of the diverted forest land,	<ul style="list-style-type: none"> • Noted & shall be complied



	<p>mining lease and safety zone, as applicable, shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from pillar to pillar and GPS coordinates;\The layout plan of the mining plan/ proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal</p>	<p>An Undertaking is enclosed as Annexure- 33</p>
xxx	<p>The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department, or person without prior approval of the Central Government;</p>	<ul style="list-style-type: none"> • Noted & shall be complied
xxxii	<p>No damage to the flora and fauna of the adjoining area shall be caused;</p>	<ul style="list-style-type: none"> • Noted & shall be complied <p>An Undertaking is enclosed as Annexure-34</p>
xxxiii	<p>The user agency shall comply all the provisions of the all Acts, Rules, Regulations, Guidelines, Hon'ble Court Order (s) and NGT Order (s) pertaining to this project,</p>	<ul style="list-style-type: none"> • Noted & shall be complied <p>An Undertaking is enclosed as Annexure-35</p>



	if any, for the time being in force, as applicable to project	
xxxiii	The User Agency shall submit the annual self-compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly.	<ul style="list-style-type: none"> Noted & shall be complied An Undertaking is enclosed as Annexure-36
xxxiv	Any other condition that the Ministry of Environment, Forests & Climate Change may stipulate from time to time in the interest of conservation, protection and development of forests & wildlife shall be carried with by the State Government and user agency	<ul style="list-style-type: none"> Noted & shall be complied An Undertaking is enclosed as Annexure-37
xxxv	Violation of any of these conditions will amount to violation of Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980 and action would be taken as prescribed in para 1.16 of Chapter 1 of the Consolidated Guidelines and Clarifications on Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980 as issued by this	<ul style="list-style-type: none"> Noted



	Ministry's letter dated 29.12.2023	
xxxvi	The compliance report shall be uploaded on e-portal (https://parivesh.nic.in/)	<ul style="list-style-type: none">• Noted & shall be complied

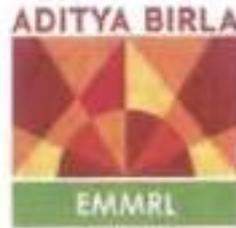
We request your good office to expedite the process for the grant of Final Forest Clearance of Bandha Coal Mines allotted to EMMRL.

Thanking you in anticipation for your kind help,
Yours faithfully,
For EMIL Mines and Mineral Resources Limited

Dipesh Bhatia
02.04.2025

Dipesh Bhatia
Project Head- Bandha Coal Block

Encl: All annexures mentioned above



Annexure-1

UNDERTAKING LEGAL STATUS OF THE DIVERTED FOREST LAND SHALL REMAIN UNCHANGED

In Compliance to **condition no-i** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh. I hereby undertake that the legal status of the diverted forest land shall remain unchanged.


Project Head

EMMRL Bandha Coal Block

कार्यालय वनमण्डलाधिकारी, सामान्य वन मण्डल कटनी

फोन नंबर - 07622-227417 (कार्यालय) 220700 (पैका), Email-dfo@karni.mp.gov.in

क्रमांक/मा0चि0/9511
प्रति,

कटनी, दिनांक 14/12/2024

प्राधिकृत अधिकारी,
मे0 ई.एम.आई.एल. माईन्स
एण्ड मिनरल रिसोर्सेस लिमिटेड
बंघा कोल ब्लॉक, सिंगरीली (म0प्र0)

विषय - मे0 ई.एम.आई.एल. माईन्स एण्ड मिनरल रिसोर्सेस लिमिटेड के सिंगरीली जिले के तहसील सरई में रकबा 785.49 हे0 वनभूमि में बंघा कोल ब्लॉक के वनभूमि व्यववर्तन के आनलाईन प्रस्ताव FP/MP/MIN/144129/2018 के संबंध में।

संदर्भ - वन संरक्षक, मध्य वन वृत्त जबलपुर का आदेश क्रमांक/व्यय/मा0चि0/97 दिनांक 18.12.2024 एवं पत्र पृ. क्रमांक/मा0चि0/8534 दिनांक 18.12.2024.

उपरोक्त विषयान्तर्गत सिंगरीली जिले की तहसील सरई में रकबा 785.49 हे0 वनभूमि में बंघा कोल ब्लॉक के वनभूमि व्यववर्तन प्रकरण FP/MP/MIN/144129/2018 में अपर प्रधान मुख्य वन संरक्षक (मू-प्रबंध) भोपाल के पत्र पृ. क्र./एफ-1/841/2023/10-11/5113 दिनांक 03.10.2024 के अनुसार प्रकरण में भारत सरकार, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली के पत्र दिनांक 03.10.2024 के माध्यम से प्रकरण में प्रथम चरण स्वीकृति प्राप्त होने के उपरान्त व्यववर्तित वन भूमि के बदले में तैयार की गई 11 वर्षीय वैकल्पिक वृक्षारोपण योजना की तकनीकी स्वीकृति वन संरक्षक मध्य वन वृत्त जबलपुर द्वारा अपने आदेश क्रमांक/व्यय/मा0चि0/97 दिनांक 18.12.2024 से कुल राशि रु. 2,77,16,375/- (दो करोड़ सत्तर लाख सोलह हजार तीन सौ पच्चात्तर रुपये) जारी की गई है।

अतः आप उपरोक्त प्रकरण में 11 वर्षीय वैकल्पिक वृक्षारोपण योजना की कुल राशि रु. 2,77,16,375/- (दो करोड़ सत्तर लाख सोलह हजार तीन सौ पच्चात्तर रुपये) **E-Portal** (<https://parivesh.nic.in>) के माध्यम से केंद्रा मद अंतर्गत तत्काल जमा कर जमा किये जाने की पुष्टि से इस कार्यालय को अवगत करावें। ताकि तदनुसार प्रकरण में अधिम आवश्यक कार्यवाही की जा सके।

क्रमांक/मा0चि0/9512
प्रतिलिपि -

1. प्रधान मुख्य वन संरक्षक (मू-प्रबंध) म0प्र0 भोपाल की ओर संदर्भित पत्र के संदर्भ में सूचनार्थ सादर सम्बंधित।
2. वन संरक्षक, मध्य वन वृत्त जबलपुर की ओर सूचनार्थ सम्बंधित।


वनमण्डलाधिकारी
सामान्य वनमंडल कटनी
कटनी, दिनांक 14/12/2024


वनमण्डलाधिकारी
सामान्य वनमंडल कटनी

कार्यालय वनमंडलाधिकारी, सामान्य वनमण्डल शाजापुर (म.प्र.)

पता : टेलीफोन टॉवर के पास ए.बी. रोड शाजापुर (म.प्र.) पिन 465001

ई-मेल : dfotsjpur@mp.gov.in,

शाजापुर, दिनांक 31.10.25

क्रमांक/तक/2025/469

प्रति,

मेसर्स ईएमआईएल माईन्स एण्ड मिनरल रिसोर्सेस लिमिटेड

वनजीवन विहार, विंध्यानगर, बाइडन

सिंगरौली (म.प्र.)

विषय:- वनमण्डल सिंगरौली के परिक्षेत्र बैङ्कन/पूर्व सरई RF- 389, 390, 290, 291, 292, 293, 294, 391, 392, 296, 319 & PF- 316, 317 के रकबा 804.367 हे. वनभूमि तथा विभिन्न खसरो के रकबा 3.55 हे. राजस्व वनभूमि कुल 807.917 हे. वनभूमि में बन्धा कोल ब्लॉक अंतर्गत ओपन कास्ट खनन हेतु उपयोग के व्यपवर्तन का मेसर्स ईएमआईएल माईन्स एण्ड मिनरल रिसोर्सेस लिमिटेड का ऑनलाईन प्रस्ताव - FP/MP/MIN/144129/2021 ।

संदर्भ:- '1. भारत सरकार, पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली का पत्र दिनांक 01.10.2024
2. प्रधान मुख्य वन संरक्षक (भू-प्रबंध) म.प्र.भोपाल का पत्र क्रमांक/एफ-1/841/2023/10-11/5112 दिनांक 03.10.2024

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विषयांकित संदर्भ में लेख हैं कि वनमण्डल सिंगरौली के परिक्षेत्र बैङ्कन/पूर्व सरई आरएफ-389, 390, 290, 291, 292, 293, 294, 391, 392, 296, 319 एण्ड पीएफ 316, 317 के रकबा 804.367 हे. वनभूमि तथा विभिन्न खसरो के रकबा 3.55 हे. राजस्व वनभूमि कुल 807.917 हे. वनभूमि में बन्धा कोल ब्लॉक अंतर्गत ओपन कास्ट खनन हेतु उपयोग के व्यपवर्तन का मेसर्स ईएमआईएल माईन्स एण्ड मिनरल रिसोर्सेस लिमिटेड का ऑनलाईन प्रस्ताव - FP/MP/MIN/144129/2021 में प्रभावित वनभूमि के एवज में क्षतिपूर्ति वनीकरण के लिए कलेक्टर जिला आगर-मालवा द्वारा ग्राम कण्डारी, ग्राम खेड़ा चौहान, ग्राम बीजानगरी तहसील बड़ौद एवं ग्राम घुरासिया तहसील आगर की रकबा 165.00 हेक्टेयर भूमि की तैयार की गई 11 वर्षीय क्षतिपूरक वृक्षारोपण योजनाओं में निम्नानुसार तकनीकी स्वीकृति मुख्य वन संरक्षक, उज्जैन वृत्त उज्जैन द्वारा आदेश क्रमांक/तकनीकी/2025/07 दिनांक 24.01.2025 से जारी की गई है :-

क्र.	आदेश क्र. दिनांक	ग्राम का नाम	सर्वे नम्बर	कुल रकबा हे.में	आबंटित रकबा हे.में	योजना अनुसार रोपित पौधा संख्या	वैकल्पिक वृक्षारोपण हेतु प्रस्तावित राशि
1.	101/अ-20(3)/2023-24 दि. 04.11.2024	ग्राम कण्डारी तहसील बड़ौद	96 98	7.87 14.08	7.34 11.10	18440	13169588 /-
योग :-					18.440		
2.	103/अ-20(3)/2023-24 दि. 04.11.2024	ग्राम खेड़ा चौहान तहसील बड़ौद	1356 1369 1066 1380 1363	5.65 27.01 29.91 2.00 14.81	0.25 27.01 25.08 2.00 14.81	69150	35592761 /-
योग :-					69.150		
3.	99/अ-20(3)/2023-24 दि. 18.10.2024	ग्राम घुरासिया तहसील आगर	194	40.08	23.00	23000	15785641 /-
4.	100/अ-20(3)/2023-24 दि. 18.10.2024	ग्राम बीजानगरी तहसील बड़ौद	2 66/1 10/1 10/2 9 5/1 4/1 3/1	31.650 4.460 9.380 9.720 5.700 14.50 4.64 11.04	12.070 2.480 4.150 9.720 5.700 10.980 3.790 5.520	54410	31347019 /-
योग :-					54.410		
महायोग :-					165.00	165000	95895009 /-

निरन्तर.....2..

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उपरोक्त स्वीकृत वैकल्पिक वृक्षारोपण योजनाओं की लागत राशि कुल रूपये 95895009/- (नौ करोड़ अड़तावन लाख पिन्यानवे हजार नौ रू. मात्र) पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय के ई-पोर्टल के माध्यम से कैम्पा फण्ड में राशि जमा की जाये तथा प्रोसेसिंग शुल्क रूपये 9589501/- (पिन्यानवे लाख नवासी हजार पाँच सौ एक रू0 मात्र) राज्य की राजस्व मद "0406 वानिकी और वन्य जीवन (01) वानिकी, (800) अन्य प्राप्तियां, (0229) विविध प्राप्तियां मद में एम.पी. ऑनलाईन ट्रेजरी अथवा डी.डी. के माध्यम से जमा की जाकर घालान अथवा डी.डी. इस कार्यालय में प्रस्तुत करें तथा गैर वनभूमि का आधिपत्य विधिवत रूप से विभाग को हस्तांतरित किया जाना सुनिश्चित करें।

संलग्न :- उपरोक्तानुसार।

(श्रीमती हेमलता शाह)

वनमण्डलाधिकारी

वनमण्डल, शाजापुर

शाजापुर, दिनांक 31.10.25

पृ.क्रमांक/तक/2025/470
प्रतिलिपि :-

1. प्रधान मुख्य वन संरक्षक (कक्ष भू-प्रबंध) म.प्र. भोपाल की ओर सादर सूचनार्थ प्रेषित।
2. मुख्य वन संरक्षक पदेन वन संरक्षक, उज्जैन वृत्त उज्जैन की ओर सादर सूचनार्थ प्रेषित।
3. उपवनमंडलाधिकारी, वनमंडल शाजापुर की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु अग्रेषित।
4. वन परिक्षेत्र अधिकारी आगर की ओर भेजकर लेख किया जाता है कि कलेक्टर जिला आगर-मालवा द्वारा आदेश दिनांक 18.10.2024 से हस्तांतरित ग्राम घुरासिया तहसील आगर व ग्राम बीजानगरी तहसील बड़ौद एवं आदेश दिनांक 04.11.2024 से हस्तांतरित ग्राम कण्डारी व खेड़ा चौहान तहसील बड़ौद की कुल 165.00 हे. गैर वनभूमि का नियमानुसार सीमांकन उपरोक्त कब्जा प्राप्त कर मय KML के एवं भारतीय वन अधिनियम 1927 की धारा-29 के अधिसूचना प्रस्ताव तैयार करने हेतु चेकलिस्ट अनुसार अभिलेख संबंधित अधिकारियों/कर्मचारियों के हस्ताक्षर, नाम एवं पदनाम सहित प्राप्त कर शीघ्र इस कार्यालय में भेजना सुनिश्चित करें।

वनमण्डलाधिकारी

वनमंडल, शाजापुर

कार्यालय वन मण्डल अधिकारी उत्तर सागर वनमंडल, जिला सागर (म.प्र.)

E-mail :- dfo@nsagarmp.gov.in; Phone & Fax No. :- 07582-236337

क्रमांक/मा.वि./2024/1065
प्रति,

सागर, दिनांक - 10/03/2025

प्राधिकृत अधिकारी,
ई.एम. आई.एल. माईन्स एण्ड
मिनरल रिसोर्सेस प्राईवेट लिमिटेड
इंडस्ट्रीज हॉकरा, 18 वीं मंजिल 10 कैम्पेक स्ट्रीट कोलकत्ता (Pin No. 700017)

विषय :-

संदर्भ :-1.

- वनमण्डल सिंगरौली के परिक्षेत्र वैडन/पूर्व सरई आर.एफ. 389, 390, 290, 291, 292, 293, 294, 391, 392, 296, 319 एवं पीएफ 316, 317 का रकवा 804.367 हेक्टेयर वनभूमि तथा विभिन्न खसरा के रकवा 3.66 हेक्टेयर राजस्व वनभूमि कुल रकवा 807.917 हेक्टेयर वनभूमि में वन्धा कोल ब्लॉक अन्तर्गत ओपन कास्ट खनन हेतु उपयोग के व्यपवर्तन का मेसर्स ई.एम. आई.एल.माईन्स एण्ड मिनरल रिसोर्सेस प्राईवेट लिमिटेड का ऑनलाइन प्रस्ताव क्र. FP/MP/MIN/144129/2021 भारत सरकार, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली के पत्र दिनांक 01.10.2024
- अपर प्रधान मुख्य वन संरक्षक(नू-प्रबंध) मध्यप्रदेश भोपाल का पत्र क्र. एफ-1/841 /2023 /10-11/2023/5112 दिनांक 03.10.2024
- आपका पत्र क्रमांक/ई.एम.आई.एल./वन्धा/73 दिनांक 07.03.2025.
- इस कार्यालय का पत्र क्रमांक/मा.वि./5080 दिनांक 22.10.2024.

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भारत सरकार के उपरोक्त सन्दर्भित पत्र से प्रकरण में जारी सैद्धांतिक स्वीकृति में अधिरोपित शर्तों के अंतर्गत कार्यवाही बावत् इस कार्यालय के संदर्भित पत्र से आपको लेख किया गया है, प्रकरण में आपके पत्र दिनांक 07.03.2025 के अनुक्रम में क्षतिपूर्ति वनीकरण के संबंध में चाहा गया संशोधित मांग पत्र निम्नानुसार है :-

क्र.	वन परिक्षेत्र	ग्राम का नाम	खसरा नंबर	हस्तांतरित रकवा (हे. में)	हस्तांतरण आदेश क्रमांक व दिनांक	निर्धारित राशि
1	उत्तर सागर	बरखेड़ा खुमान	667/3	52.78	0127/अ- 20 (03) वर्ष 2024-25 दिनांक 24.12.2024.	26354589.00
2	उत्तर सागर	मकरोनिया मुहाल	1/5	115.73	0121/अ- 20 (03) वर्ष 2024-25 दिनांक 24.12.2024.	52069531.00
3	उत्तर सागर	सडेरी	20/2	10.95	0128/अ- 20 (03) वर्ष 2024-25 दिनांक 24.12.2024.	8927544.00
4	उत्तर सागर	सडेरी	650/1	28.90	0128/अ- 20 (03) वर्ष 2024-25 दिनांक 24.12.2024.	15943720.00
5	उत्तर सागर	जेरवारा	364/2	70.00	0124/अ- 20 (03) वर्ष 2024-25 दिनांक 24.12.2024.	28925607.00
6	उत्तर सागर	जेरवारा	264/1	65.00	0124/अ- 20 (03) वर्ष 2024-25 दिनांक 24.12.2024.	33007054.00
7	उत्तर सागर	ढाना नरयावली	421/1/2	35.00	0122/अ- 20 (03) वर्ष 2024-25 दिनांक 24.12.2024.	17033658.00
		योग :-		378.36		182261703.00

1. अधिरोपित शर्त क्रमांक— ii(a) अनुसार वन मंडल अंतर्गत क्षतिपूर्ति वनीकरण योजना हेतु प्रस्तावित गैर वनभूमि रकवा 378.36 हेक्टेयर में वृक्षारोपण की कुल राशि 182261703/- (शब्दों में - अठारह करोड़ बाईस लाख इक्सठ हजार सात सौ तीन रुपये मात्र) पोर्टल के माध्यम से केम्पा मद में हस्तांतरित की जावे। हस्तांतरित राशियों के चालान की प्रति एवं बैंक स्टेटमेन्ट की प्रति प्रस्तुत करें।

2. अधिरोपित शर्त क्रमांक ii(b) अनुसार क्षतिपूर्ति वनीकरण योजना हेतु प्रस्तावित गैर वनभूमि रकवा 378.36 हेक्टेयर भूमि का स्थायी सीमांकन राजस्व विभाग से कराने के पश्चात् वन विभाग को आधिपत्य सौंपा जावे, सौंपी गयी गैर वनभूमि को वनभूमि घोषित कराने बावत् प्रचलित चेक लिस्ट अनुसार अभिलेखों की मूल प्रतियां एवं मानचित्र इस कार्यालय में प्रस्तुत किया जावे।

(चन्द्रशेखर सिंह)

भा.व.से.

वनमंडल अधिकारी
उत्तर सागर वनमंडल

पृ क्रमांक/मा.चि/2024/

सागर, दिनांक -

प्रतिलिपि :- अपर प्रधान मुख्य वन संरक्षक (भू-प्रबंध) मध्यप्रदेश भोपाल वन भवन तुलसीनगर भोपाल को इस कार्यालय के पत्र क्रमांक/5061 दिनांक 22.10.2024 के अनुक्रम में सूचनार्थ सन्निहित।

2. मुख्य वन संरक्षक सागर वन वृत्त सागर को सूचनार्थ प्रेषित।

3. उप वनमंडल अधिकारी उत्तर सागर को सूचनार्थ एवं आवश्यक कार्यवाही हेतु अग्रेषित।

4. वन परिक्षेत्र अधिकारी उत्तर सागर को सूचनार्थ अग्रेषित कर लेख है कि प्रकरण में प्रस्तावित गैर वनभूमियों के हस्तांतरण व स्थायी सीमांकन उपरान्त आवेदक संस्थान की उपस्थिति में राजस्व विभाग से मौका आधिपत्य प्राप्त किया जावे। आधिपत्य में प्राप्त की गई की सीमांकित भूमियों के प्रचलित मापदण्डों के अनुसार मौका पंचनामा की मूल प्रतियां, सीमांकित संपूर्ण क्षेत्र की जी.पी.एस. शीटिंग एवं स्थल दर्शित मानचित्र की प्रत्यापित प्रति उप वनमंडल अधिकारी के माध्यम से इस कार्यालय में प्रस्तुत की जावे।

वनमंडल अधिकारी

उत्तर सागर वनमंडल



कार्यालय सामान्य, वनमण्डल छतरपुर (म.प्र.)

जवाहर रोड छतरपुर म.प्र. 471001 फोन 07882.245318 (O), 245316 (FAX)

E-mail :- dfotchtpr@mp.gov.in

क्रमांक/स्टेनो/तकनीकी/2025/1056
प्रति,

छतरपुर, दिनांक 01-4-25

वनमंडलाधिकारी
वनमंडल सिंगरौली (म0 प्र0)

विषय :- वनमण्डल छतरपुर अंतर्गत ई.एम.आई.एल. माइन्स एण्ड गिनरल्स रिसोर्सेस लि0 (आदित्य बिरल ग्रुप) बन्धा कोल ब्लॉक सिंगरौली में प्रभावित 807.917 हेक्टे. वनभूमि के एवज में वैकल्पिक वृक्षारोपण हेतु क्षतिपूर्ति वनीकरण परियोजना हेतु राशि जमा कराने बाबत।

संदर्भ :- वन संरक्षक छतरपुर, वृत्त छतरपुर का पत्र क्र./तकनीकी/व्यय/2025/96 छतरपुर, दिनांक 31.03.2025, पत्र क्र. 97 दिनांक 31.03.2025, पत्र क्र. 98 दिनांक 31.03.2025, पत्र क्र. 99 दिनांक 31.03.2025, पत्र क्र. 100 दिनांक 31.03.2025

—00—

विषयांतर्गत लेख है कि संदर्भित पत्रों के माध्यम से वन संरक्षक, छतरपुर, वृत्त छतरपुर के द्वारा वनमण्डल छतरपुर अंतर्गत ई.एम.आई.एल. माइन्स एण्ड गिनरल्स रिसोर्सेस लि0 (आदित्य बिरला ग्रुप) बन्धा कोल ब्लॉक सिंगरौली में प्रभावित 807.917 हेक्टे. वनभूमि के एवज में वैकल्पिक वृक्षारोपण हेतु क्षतिपूर्ति वनीकरण परियोजना अंतर्गत निम्नानुसार तकनीकी स्वीकृति जारी की गई है, जिसके अनुसार निम्नानुसार ई-पोर्टल के माध्यम (कैम्पा) में जमा करावें :-

जिला/ वनमण्डल	ग्राम/परिक्षेत्र	खसरा /कक्ष क्र.	क्र. एवं	रोपण हेतु प्रस्तावित रकवा(हे. में.)	राशि	मद
छतरपुर/ छतरपुर	कसेरा/बकस्वाहा	13/1/1 26/1/1	एवं	46.00	40843047.00	ई-पोर्टल के माध्यम कैम्पा मद
छतरपुर/ छतरपुर	कसेरा/बकस्वाहा	364/1/1		13.00	14166429.00	ई-पोर्टल के माध्यम कैम्पा मद
छतरपुर/ छतरपुर	बकस्वाहा	पी-215 पी-213	एवं	122.00	39991433.00	ई-पोर्टल के माध्यम कैम्पा मद
छतरपुर/ छतरपुर	बकस्वाहा	पी-249		90.00	29358622.00	ई-पोर्टल के माध्यम कैम्पा मद
छतरपुर/ छतरपुर	बकस्वाहा	पी-263		110.00	36254876.00	ई-पोर्टल के माध्यम कैम्पा मद
योग				381	160614407.00	

इस आशय का बचन पत्र भी प्रस्तुत करें कि भविष्य में यदि वैकल्पिक वृक्षारोपण हेतु अतिरिक्त राशि की मांग की जाती है तो यूजर एजेन्सी जमा कराने हेतु बचनबद्ध रहेगी। हस्तांतरित राशियों के चालान की प्रति एवं बैंक स्टेटमेन्ट की प्रति इस कार्यालय में प्रस्तुत करें।

परियोजना में पर्यवेक्षण शुल्क की राशि म.प्र. कोषालय में ऑन लाईन पृथक से जमा कराई जावेगी। इस हेतु आवेदक विभाग बचन पत्र प्रस्तुत करे कि यूजर एजेन्सी पर्यवेक्षण शुल्क की राशि जमा

तु बचनबद्ध रहेगी। क्षतिपूर्ति वैकल्पिक वृक्षारोपण योजनाओं की राशि रुपये 160614407/- की तशत पर्यवेक्षण शुल्क की राशि रुपये 16061441/- वनमंडलाधिकारी छतरपुर के खाते में पृथक करवायें।


(सर्वेश साइनवानी)
वनमंडलाधिकारी

सा. वनमण्डल छतरपुर (म.प्र.)

छतरपुर, दिनांक ११-५-२५

क्रमांक / स्टेनो / तकनीकी / 2025 / 1057

- प्रतिलिपि :-
1. अपर प्रधान मुख्य वन संरक्षक (भू-प्रबंध) म.प्र. भोपाल की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु सम्प्रेषित।
 2. वन संरक्षक, छतरपुर, वृत्त छतरपुर की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु सादर सम्प्रेषित।
 3. प्राधिकृत अधिकारी, ई.एम.आई.एल. माईन्स एण्डमिनरल रिसोर्सेस प्राईवेट लिमिटेड इंडस्ट्रीज हॉऊस, 18वीं मंजिल 10, कैमेक स्ट्रीट कोलकाता(पि.नं. 700017)


वनमंडलाधिकारी
सा. वनमण्डल छतरपुर (म.प्र.)

AGENCY COPY



NEFT / RTGS CHALLAN for CAMPA Funds

Date : 03-04-2025

Agency Name.	EMIL MINES AND MINERAL RESOURCES LIMITED
Application No.	58144129255
MoEF/SG File No.	8-17/2023
Location.	MADHYA PRADESH
Address.	Industry House, 18th Floor, 10, Camac Street Kolkata
Amount(in Rs)	1610164866/-

Amount in Words :One Hundred and Sixty-One Crore One Lakh Sixty-Four Thousand Eight Hundred and Sixty-Six Rupees Only

NEFT/RTGS to be made as per following details;

Beneficiary Name:	MADHYA PRADESH CAMPA
IFSC Code:	UBIN0996335
Pay to Account No.	1507658144129255 Valid only for this challan amount.
Bank Name & Address:	Union Bank Of India FCS Centre,21/1, III Floor, Jelitta Towers, Mission Road, Bengaluru-560027

- This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

BANK COPY



NEFT / RTGS CHALLAN for CAMPA Funds

Date : 03-04-2025

Agency Name.	EMIL MINES AND MINERAL RESOURCES LIMITED
Application No.	58144129255
MoEF/SG File No.	8-17/2023
Location.	MADHYA PRADESH
Address:	Industry House, 18th Floor, 10, Camac Street Kolkata
Amount(in Rs)	1610164866/-

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IFSC Code:	UBIN0996335
Pay to Account No.	1507658144129255 Valid only for this challan amount.
Bank Name & Address:	Union Bank Of India FCS Centre, 21/1, III Floor, Jelitta Towers, Mission Road, Bengaluru-560027

- This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

Note:After making the required payment through challan, if the payment status has not been updated even after 7 working days, then kindly mail a copy of your challan with transaction date and reference id to Email: fcsblr@unionbankofindia.bank , epurse@unionbankofindia.bank, ubin0903710@unionbankofindia.bank



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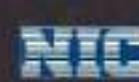


Online payment history made by User Agency under CAMPA

Help



Sno.	Proposal Detail	Application_No	Application No (New)	Date of IN-PRINCIPLE	Amount to be Paid/Amount Paid (in Rs.)	Payment Status	Payment Detail	Demand Letter
1	FP/MP/MIN/144129/2021 Bandha Coal Mine	MIN1441292021255	58144129255	01 Oct 2024	CA: 466487494/- , PCA: 0/- , Safety Zone: 0/- , NPV: 991637372/- , Other Charges1 : 0/- Other Charges2 : 0/- Other Charges3 : 0/- Total : 1610164856/-	Addl CA : 0/- CAT : 59970000/- Addl PA : 0/- WLMP : 92070000/-	Paid Fund Demand Verified by Nodal Officer On :03 Apr 2025 Bank Name :Union Bank Of India Mode of Payment :NEFT/RTGS (Challan) Challan Generated On :03 Apr 2025 Transaction Date :29 Mar 2025	Demand Letter Generated Challan



Annexure-4



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156060952

ग्राम: बीजानगरी			पटवारी हल्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता /पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
159839 5432	2/1 (S)		12.0700 हेक्टेयर रु.0.00	(शासकीय) मध्य प्रदेश शासन शासकीय	1						न्यायालय कलेक्टर के प्रकरण क्र. 0100/अ-20(3)/2023-24, आदेश दि. 18/10/2024 के अनुसार भू-अभिलेख अद्यतित
81QK56 D8S2G YH0											



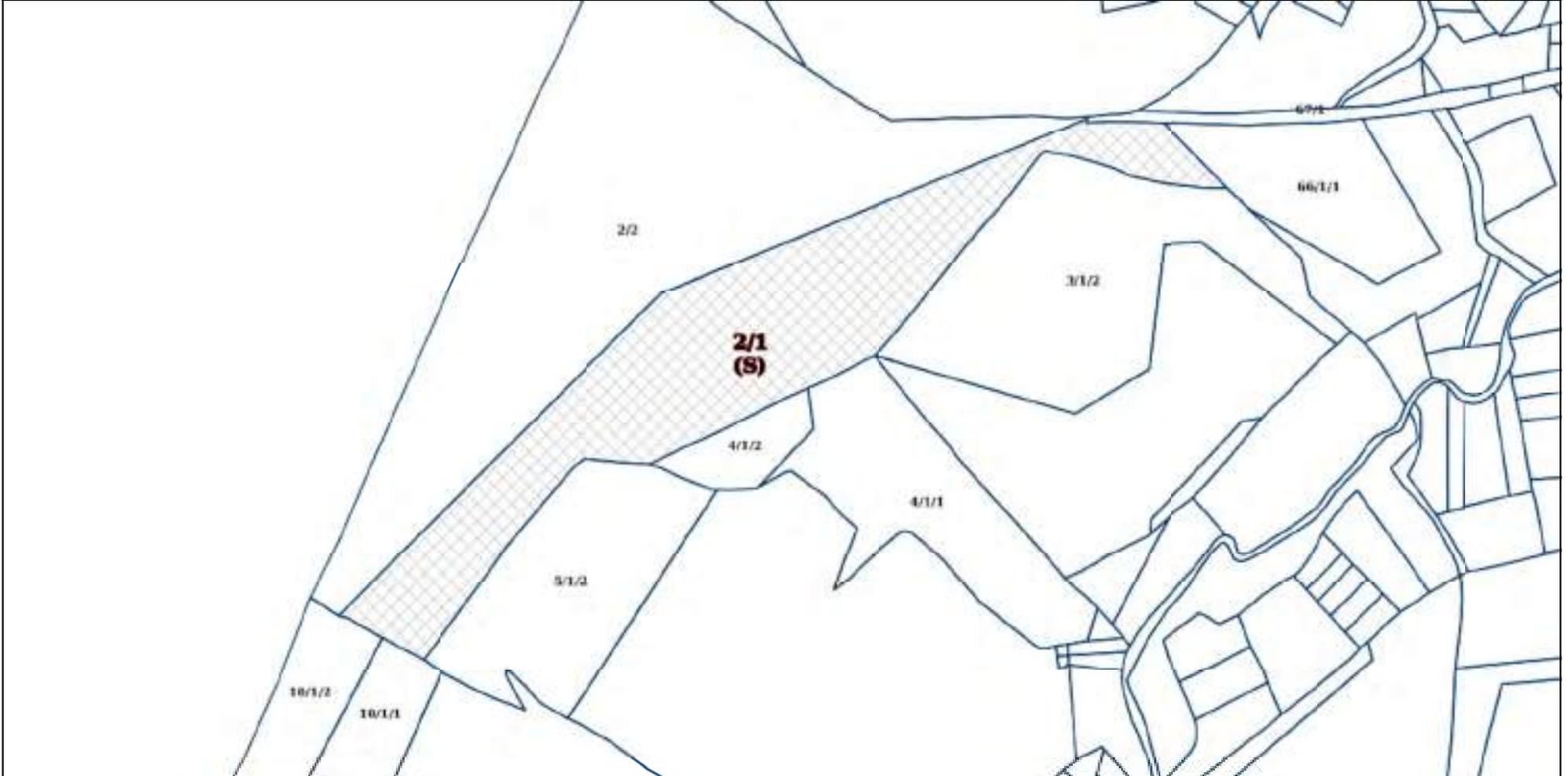
मध्यप्रदेश कांप्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11156061072



वर्ष: 2024-25

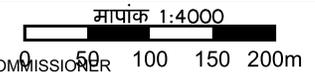
दिनांक: 04-03-2025 17:14:39



ब्लॉक सं.:	ग्राम: वीजानगरी	हल्का: वीजानगरी	तहसील: बडौद	जिला: आगर-मालवा
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सर्वेक्षण सं.:	2/1(S)	क्षेत्रफल: 12.0700 (हेक्ट.)	भू.रा.शा: 0
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वेब: <http://mpra.mch.gov.in>; (सहायक वेब): <http://mpra.mch.gov.in>



Digitally signed by DS COMMISSIONER
 LAND RECORDS MADHYA PRADESH 1
 Date: 2025.03.04 17:22:58 IST
 Reason: Digital Extract of Land Record -
 Map Copy
 CLR No.: 11156061072

(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156055688

ग्राम: बीजानगरी			पटवारी हल्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
159839 5375	3/1/1 (S)		5.5200 हेक्टेयर रु.0.00	(शासकीय) मध्यप्रदेश शासन शासकीय	1						न्यायालय कलेक्टर के प्रकरण क्र. 0100/अ-20(3)/2023-24, आदेश दि. 18/10/2024 के अनुसार भू-अभिलेख अद्यतित
81QK10 D8S7C UHO											



मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11156055756

वर्ष: 2024-25

दिनांक : 04-03-2025 16:59:25



ब्लॉक सं.:	ग्राम:बीजानगरी	हल्का:बीजानगरी	तहसील:बडौद	जिला:आगर-मालवा
सर्वेक्षण सं.: 3/1/1(S)	क्षेत्रफल:5.5200(हेक्ट.)	भू.रा.शा:0	मापांक 1:4000 (पृष्ठ आकार A4)	0 20 40 60 80 100 120 160m

वेब-पेज, वेब-पोर्टल, वेब-एप्लिकेशन (शासकीय) मध्यप्रदेश शासन शासकीय

Digitally signed by DS COMMISSIONER
LAND RECORDS MADHYA PRADESH 1
Date: 2025.03.04 17:02:53 IST
Reason: Digital Extract of Land Record -
Map Copy
CLR No. : 11156055756

(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156056674

ग्राम: बीजानगरी			पटवारी हल्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता /पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
159839 5421	4/1/1 (S)		3.7900 हेक्टेयर रु.0.00	(शासकीय) मध्य प्रदेश शासन शासकीय	1						न्यायालय कलेक्टर के प्रकरण क्र. 0100/अ-20(3)/2023-24, आदेश दि. 18/10/2024 के अनुसार भू-अभिलेख अद्यतित
81QJ54 D8S4P7 H0											



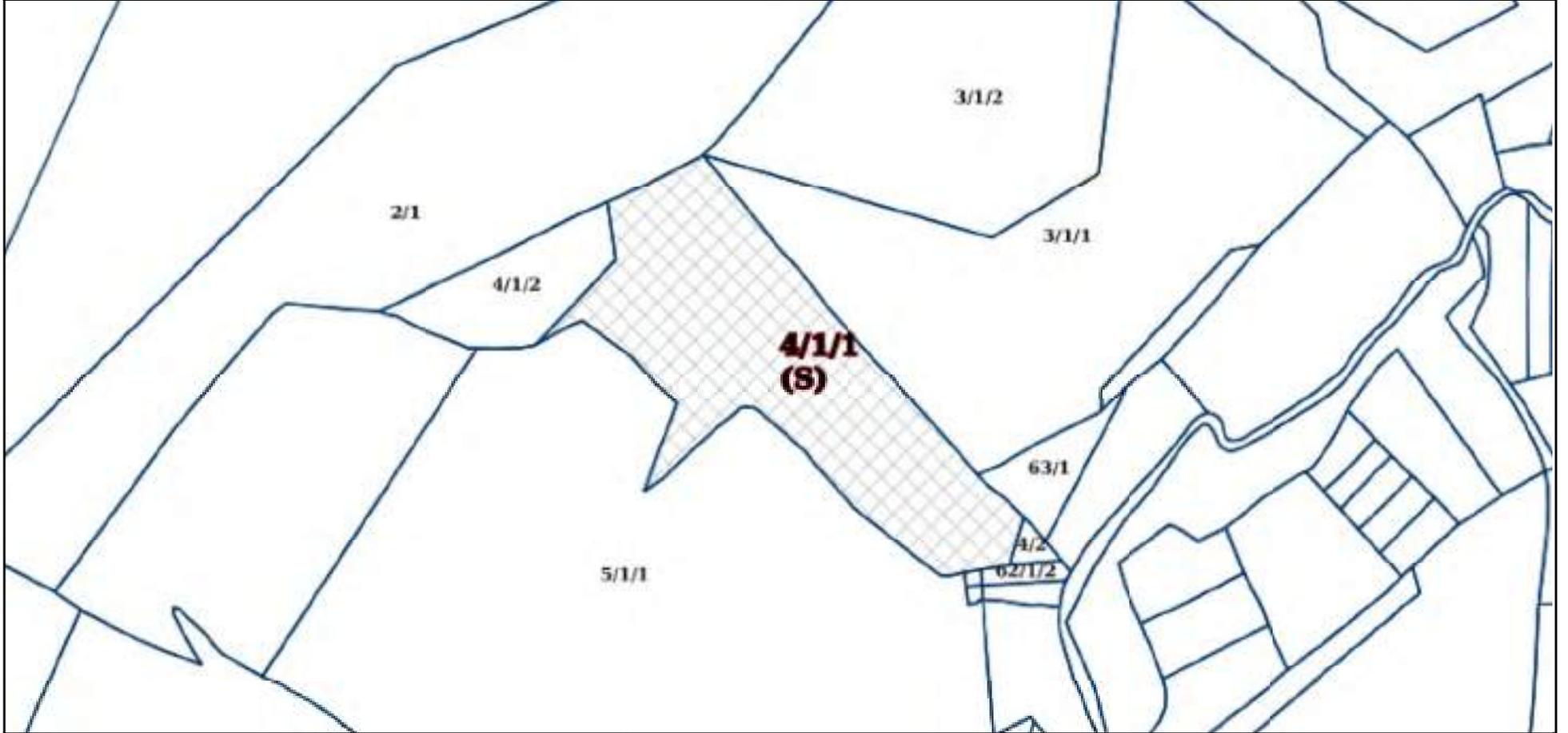
मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11156056988



वर्ष: 2024-25

दिनांक : 04-03-2025 17:02:25



ब्लॉक सं.:	ग्राम:बीजानगरी	हल्का:बीजानगरी	तहसील:बडौद	जिला:आगर-मालवा
सर्वेक्षण सं.: 4/1/1(S)	क्षेत्रफल:3.7900(हेक्ट.)	भू.रा.शा:0	मापांक 1:4000 (पृष्ठ आकार A4)	0 20 40 60 80 100 120 160m

वेब-पेज, वेब-पोर्टल, एप्लिकेशन (शासकीय) : मध्यप्रदेश शासन शासकीय

Digitally signed by DS COMMISSIONER
LAND RECORDS MADHYA PRADESH 1
Date: 2025.03.04 17:03:43 IST
Reason: Digital Extract of Land Record -
Map Copy
CLR No. : 11156056988

(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156059462

ग्राम: बीजानगरी			पटवारी हल्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक / ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता /पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
159839 5408	5/1/1 (S)		10.9800 हेक्टेयर रु.0.00	(शासकीय) मध्य प्रदेश शासन शासकीय	1						न्यायालय कलेक्टर के प्रकरण क्र. 0100/अ-20(3)/2023-24, आदेश दि. 18/10/2024 के अनुसार भू-अभिलेख अद्यतित
81QHM DD8S4 1TH0											



मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11156059326

वर्ष: 2024-25

दिनांक : 04-03-2025 17:09:16



ब्लॉक सं.:	ग्राम:बीजानगरी	हल्का:बीजानगरी	तहसील:बडौद	जिला:आगर-मालवा
सर्वेक्षण सं.: 5/1/1(S)	क्षेत्रफल:10.9800(हेक्ट.)	भू.रा.शा:0	मापांक 1:4000 (पृष्ठ आकार A4)	0 20 40 60 80 100 120 160m

Digitally signed by DS COMMISSIONER, LAND RECORDS MADHYA PRADESH 1, Date: 2025.03.04 17:12:09 IST, Reason: Digital Extract of Land Record - Map Copy, CLR No. : 11156059326

Digitally signed by DS COMMISSIONER
LAND RECORDS MADHYA PRADESH 1
Date: 2025.03.04 17:12:09 IST
Reason: Digital Extract of Land Record -
Map Copy
CLR No. : 11156059326

(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

CLR No. : 11156060042

ग्राम: बीजानगरी			पटवारी हल्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियां 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
101216 0125	9 (S)		5.7000 हेक्टेयर	(शासकीय) मध्य प्रदेश शासन शासकीय	1						न्यायालय कलेक्टर के प्रकरण क्र. 0100/अ-20(3)/2023-24, आदेश दि. 18/10/2024 के अनुसार भू-अभिलेख अद्यतित
81QEU PD8S3 Z1H0			गोठान हेतु सुरक्षित 5.7000								
			रु.0.00								



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156060676

ग्राम: बीजानगरी			पटवारी हल्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियां 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
159839 5465	10/1/1 (S)		4.1500 हेक्टेयर रु.0.00	(शासकीय) मध्यप्रदेश शासन शासकीय	1						न्यायालय कलेक्टर के प्रकरण क्र. 0100/अ-20(3)/2023-24, आदेश दि. 18/10/2024 के अनुसार भू-अभिलेख अद्यतित न्या.नायब तह.महो.के प्र.क्र.25/2000-01अ.3 दि.23.7.01 से बटांकन स्वी.

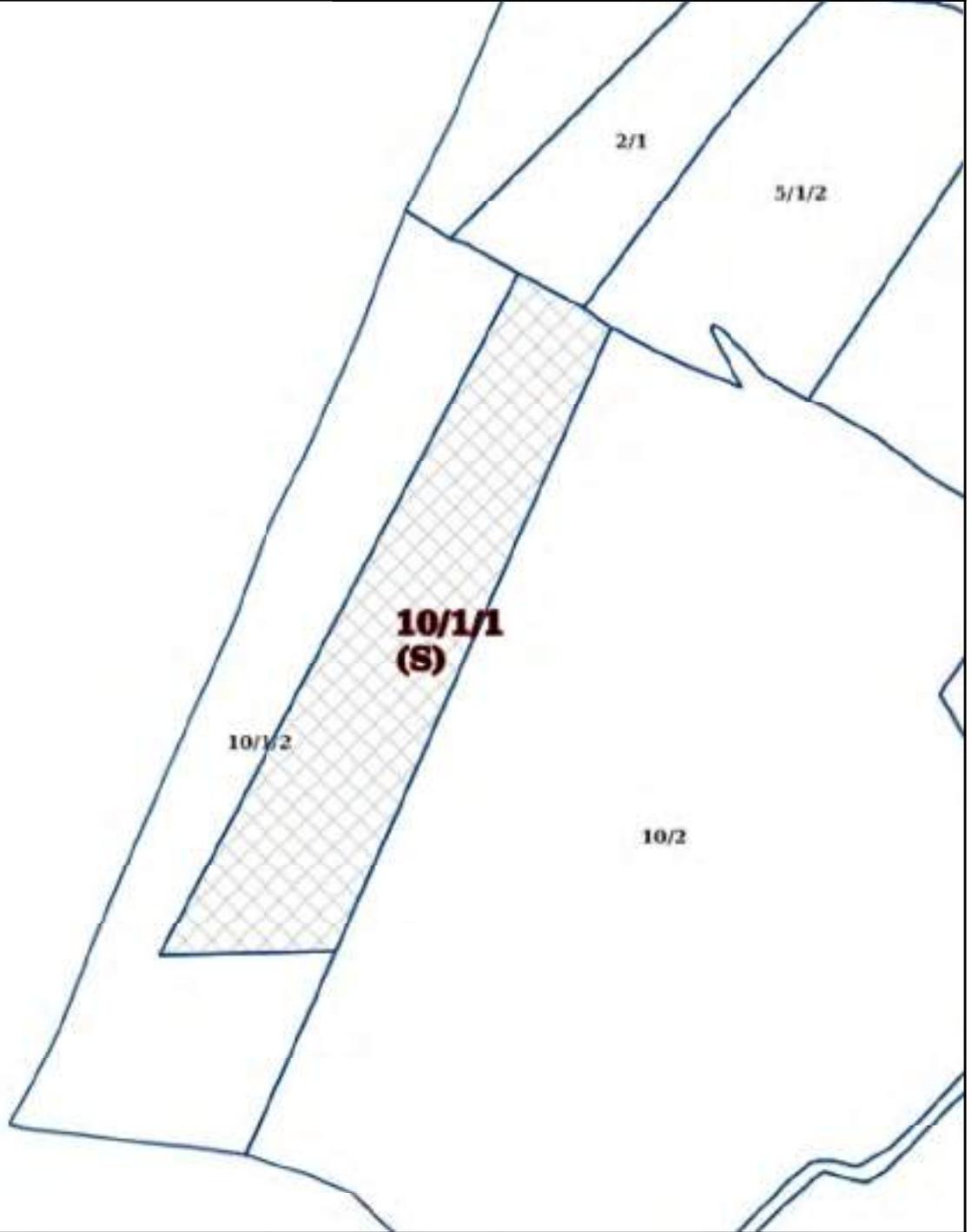


मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11156061069

वर्ष: 2024-25

दिनांक: 04-03-2025 17:14:36



ब्लॉक सं.	ग्राम	हल्का	तहसील	जिला
	बीजानगरी	बीजानगरी	बड़ौदा	आगर-मालवा
सर्वेक्षण सं.	क्षेत्रफल	भू. रा. शा	मापांक 1:4000 (पृष्ठ आकार A4) 	
10/1/1(S)	4.1500(हेक्ट.)	0		
मध्यप्रदेश सरकार (शासकीय) मध्यप्रदेश शासन शासकीय			Digitally signed by DS COMMISSIONER LAND RECORDS MADHYA PRADESH 1 Date: 2025.03.04 17:22:59 IST Reason: Digital Extract of Land Record - Map Copy CLR No. : 11156061069 (हस्ताक्षर)	



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

CLR No. : 11156060682

ग्राम: बीजानगरी			पटवारी हत्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक / ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियां 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
101344 9588	10/2 (S)		9.7200 हेक्टेयर	(शासकीय) मध्य प्रदेश शासन शासकीय	1						न्यायालय कलेक्टर के प्रकरण क्र. 0100/अ-20(3)/2023-24, आदेश दि. 18/10/2024 के अनुसार भू-अभिलेख अद्यतित
81QE7K D8S0Q TH0			गोचर नि. 9.7200								न्या.नायब तह.महो.बड़ौदा के प्र.क्र.25/2000-01 अ 3 दि.23.1.01 के पालन में बटांकन स्वी.
			रु.0.00								



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

CLR No. : 11156060685

ग्राम: बीजानगरी			पटवारी हल्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
159839 4093	66/1/1 (S)		2.4800 हेक्टेयर रु.0.00	(शासकीय) मध्य प्रदेश शासन शासकीय	1						न्यायालय कलेक्टर के प्रकरण क्र. 0100/अ-20(3)/2023-24, आदेश दि. 18/10/2024 के अनुसार भू-अभिलेख अद्यतित
81QLU SD8S8 R5H0											



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156030897

ग्राम: घुराशिया			पटवारी हत्का: घुराशिया			तहसील: आगर			जिला: आगर-मालवा		वर्ष: 2024-2025			
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश			
1	2	3	4	5	6	7	8	9	फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल		10	11	12
160238 0889	194/1 (S)		23.0000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1									न्यायालय कलेक्टर के प्रकरण क्र. 0099/अ-20(3)/2023-24, आदेश दि. 18/10/2024 के अनुसार भू-अभिलेख अद्यतित



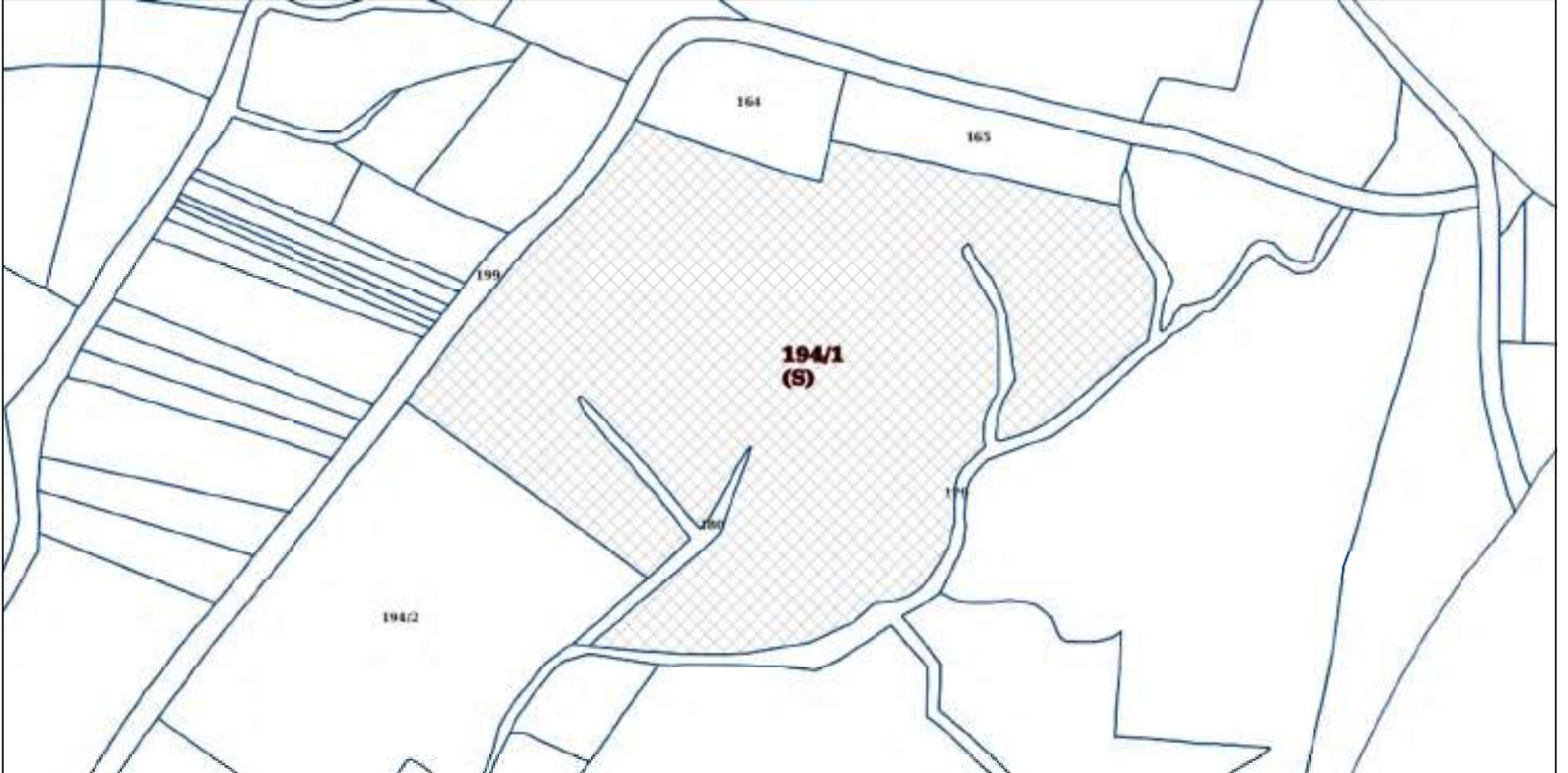
मध्यप्रदेश कांप्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11156050449



वर्ष: 2024-25

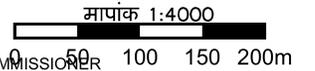
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सर्वेक्षण सं.:	194/1(S)	क्षेत्रफल: 23.0000 (हेक्ट.)	भू.रा.शा: 0
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हेतु: भू.रा.शा. 0 (आगरीय) का विवरण प्राप्त करने के लिए आगरीय कार्ड



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 Date: 2025.03.04 16:54:23 IST
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(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156054911

ग्राम: कण्डारी			पटवारी हल्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025			
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता /पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश			
1	2	3	4	5	6	7	8	9	फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल		10	11	12
159869 4895	96/1 (S)		7.3400 हेक्टेयर रु.0.00	(शासकीय) मध्य प्रदेश शासन शासकीय	1									न्यायालय कलेक्टर के प्रकरण क्र. 0101/अ-20(3)/2023-24, आदेश दि. 04/11/2024 के अनुसार भू-अभिलेख अद्यतित



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156051224

ग्राम: कण्डारी			पटवारी हल्का: बीजानगरी			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025			
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश			
1	2	3	4	5	6	7	8	9	फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल		10	11	12
159869 4873	98/1 (S)		11.1000 हेक्टेयर रु.0.00	(शासकीय) मध्यप्रदेश शासन शासकीय	1									न्यायालय कलेक्टर के प्रकरण क्र. 0101/अ-20(3)/2023-24, आदेश दि. 04/11/2024 के अनुसार भू-अभिलेख अद्यतित

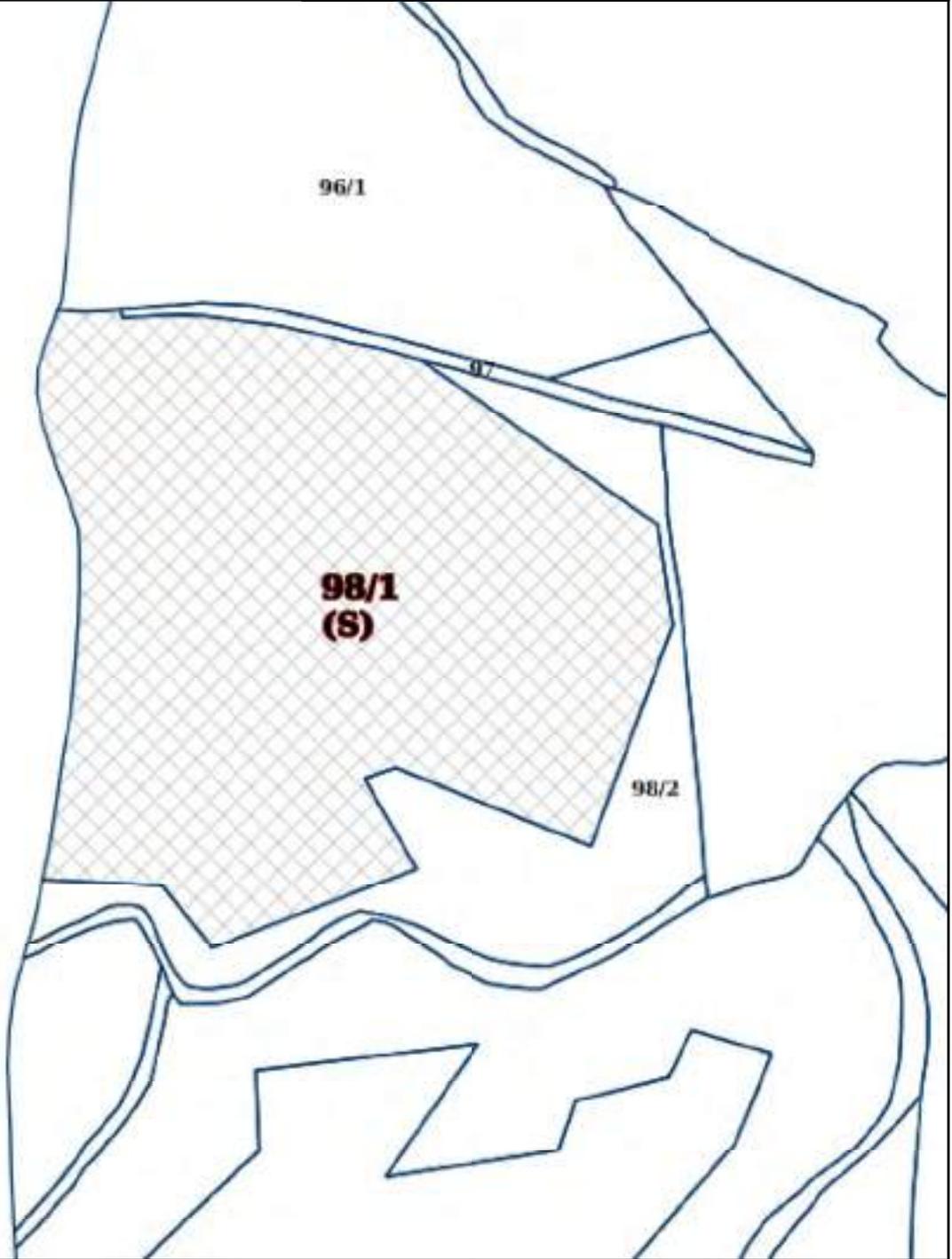


मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11156051367

वर्ष: 2024-25

दिनांक: 04-03-2025 16:49:17



ब्लॉक सं.	ग्राम	हल्का	तहसील	जिला
	कण्डारी	बीजानगरी	बडौद	आगर-मालवा
सर्वेक्षण सं.	क्षेत्रफल	भू. रा. शा	मापांक 1:4000 (पृष्ठ आकार A4)	
98/1(S)	11.1000 (हेक्ट.)	0	0 20 40 60 80 120 160 200m	

मध्यप्रदेश सरकार (शासकीय) मध्यप्रदेश शासन शासकीय

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LAND RECORDS MADHYA PRADESH 1
Date: 2025.03.04 16:55:01 IST
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मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156064851

ग्राम: खेडा चौहान			पटवारी हल्का: नारेल			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक/ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-पाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अज्ञ	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृपक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विक्राम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे फसल के अधीन क्षेत्रफल 1. खरीफ 2. रबी 3. जायद 4. अन्य	1. भूमि के सिंचाई संबंधी प्राप्ति 2. भूमि पर संरचना /वृक्ष 3. अन्य अचलियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश	
1	2	3	4	5	6	7	8	9	10	11	12
160919 4543	1066/ 2 (S)		4.8300 हेक्टेयर रु.0.00	(शासकीय) मध्यप्रदेश शासन शासकीय	1						न्यायालय कलेक्टर के प्रकरण क्र. 0103/अ-20(3)/2023-24, आदेश दि. 04/11/2024 के अनुसार भू-अभिलेख अद्यतित
81MQ0 KD8ZE 2VH0											

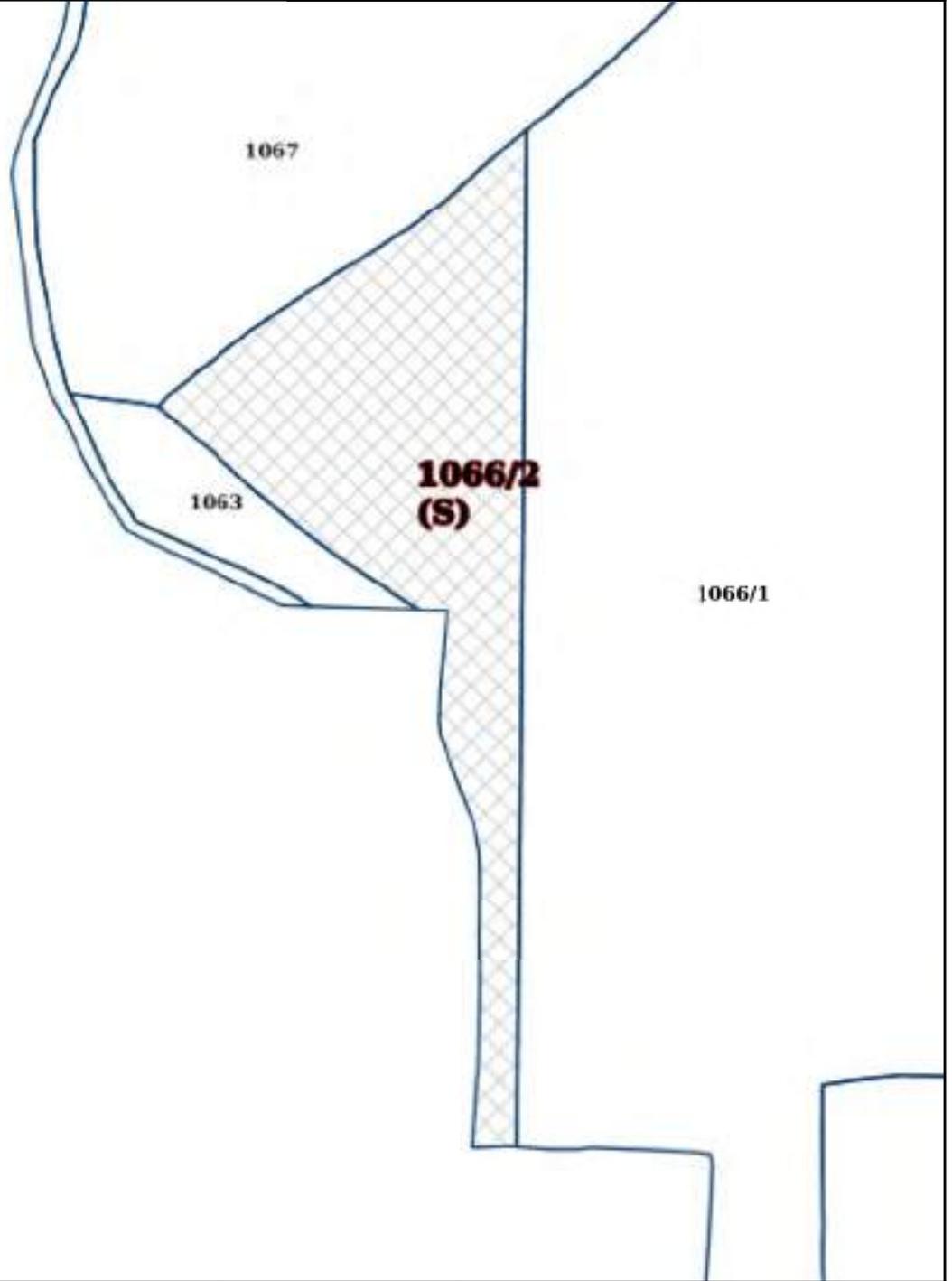


मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर. नं. : 11156065780

वर्ष: 2024-25

दिनांक: 04-03-2025 17:31:14



ब्लॉक सं.	ग्राम	हल्का	तहसील	जिला
	खेडा चौहान	नारेला	बडौद	आगर-मालवा
सर्वेक्षण सं.	क्षेत्रफल	भू. रा. शा	मापांक 1:4000 (पृष्ठ आकार A4)	
1066/2(S)	4.8300(हेक्ट.)	0	0 20 40 60 80 120 160 200m	

लेन-देन, बंधन, कर्जा, मूल्यांकन, (मासखीय) मध्यप्रदेश शासन शासकीय

Digitally signed by DS COMMISSIONER
LAND RECORDS MADHYA PRADESH 1
Date: 2025.03.04 17:34:37 IST
Reason: Digital Extract of Land Record -
Map Copy
CLR No. : 11156065780
(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख

खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156065170

ग्राम: खेडा चौहान			पटवारी हल्का: नारेला			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुप्त तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
160919 4532	1356/ 2 (S)		0.2500 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0103/अ-20(3)/2023-24, आदेश दि. 04/11/2024 के अनुसार भू-अभिलेख अद्यतित
81MRU 3D8ZH GPH0											



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख

खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156065150

ग्राम: खेडा चौहान			पटवारी हल्का: नारेला			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक / ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
147177 7132	1363 (S)		14.8100 हेक्टेयर	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0103/अ-20(3)/2023-24, आदेश दि. 04/11/2024 के अनुसार भू-अभिलेख अद्यतित
81MPL VD8ZN 21H0			का0का0 14.8100 रु.0.00								



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा
प्रारूप एक (नियम 6 देखिए)
मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156065163

ग्राम: खेडा चौहान			पटवारी हल्का: नारेला			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक/ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
147209 2277	1369 (S)		27.0100 हेक्टेयर गेरमुमकिन बर्डी 27.0100 रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0103/अ-20(3)/2023-24, आदेश दि. 04/11/2024 के अनुसार भू-अभिलेख अद्यतित



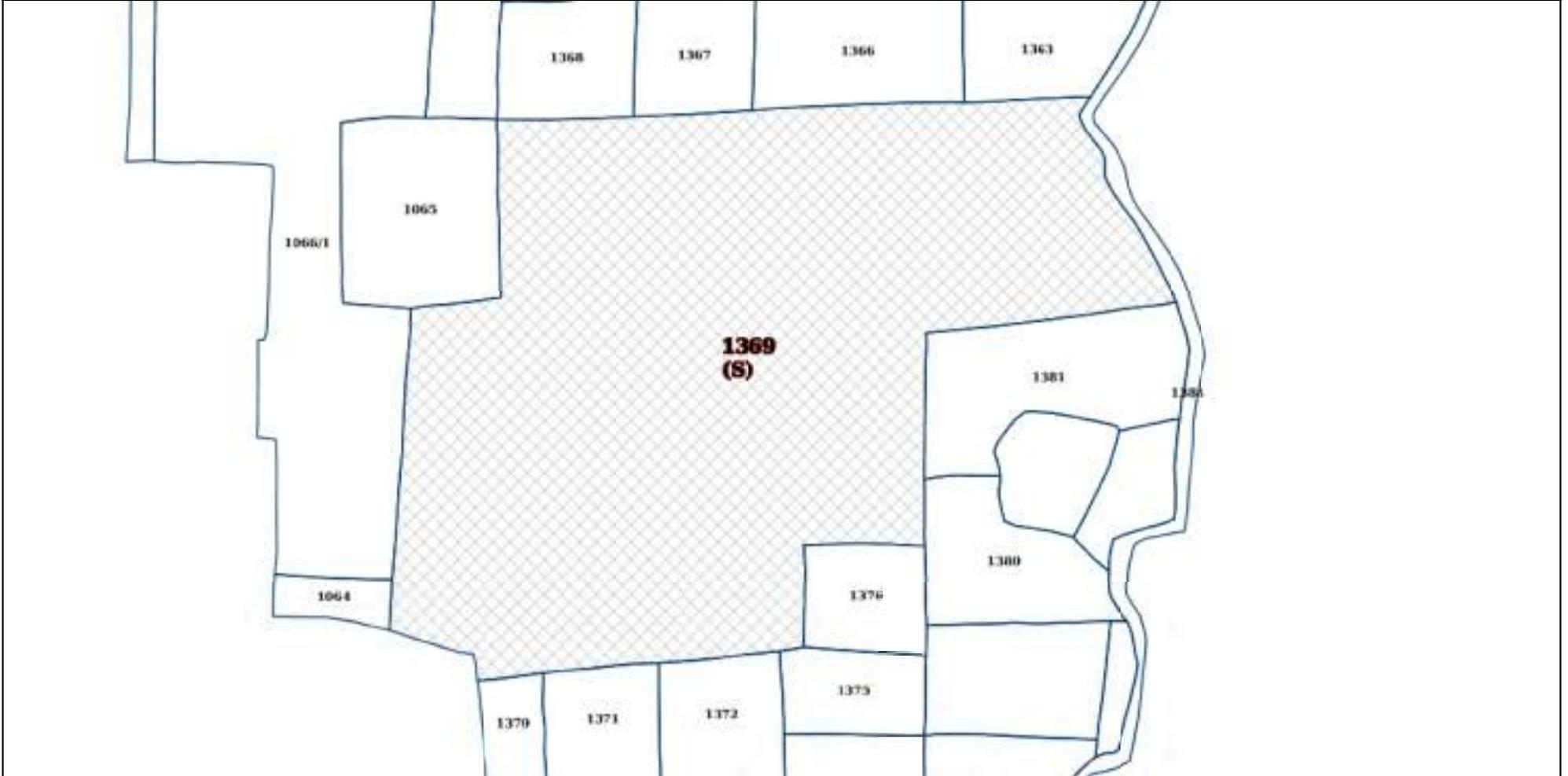
मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11156065782



वर्ष: 2024-25

दिनांक: 04-03-2025 17:31:25

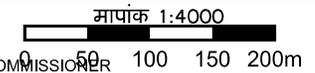


ब्लॉक सं.:	ग्राम: खेडा चौहान	हल्का: नारेला	तहसील: बडौद	जिला: आगर-मालवा
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सर्वेक्षण सं.: 1369(S)	क्षेत्रफल: 27.0100 (हेक्ट.)	भू-राजस्व: 0.00
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30-24-30-3963-440-33000394 (आवधिक) वन विभाग मध्य प्रदेश सरकार

Digitally signed by DS COMMISSIONER
 LAND RECORDS MADHYA PRADESH 1
 Date: 2025.03.04 17:34:36 IST
 Reason: Digital Extract of Land Record -
 Map Copy
 CLR No.: 11156065782



(हस्ताक्षर)

This is an electronically generated and digitally signed extract of Land Records from the Official Land Records database of Government of Madhya Pradesh located at <https://mptls/lskl.gov.in>, and reflects the status of the entries as on the date mentioned in the signature box. This document represents a certified copy of the land records.



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख

खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11156064853

ग्राम: खेडा चौहान			पटवारी हत्का: नारेला			तहसील: बड़ौदा			जिला: आगर-मालवा		वर्ष: 2024-2025		
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश		
1	2	3	4	5	6	7	8	9	फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल		10	11
147266 3013	1380 (S)		2.0000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1								न्यायालय तहसीलदार के प्रकरण क्र. 0103/अ-20(3)/2023-24, आदेश दि. 04/11/2024 के अनुसार भू-अभिलेख अद्यतित न्यायालय कलेक्टर के प्रकरण क्र. 0103/अ-20(3)/2023-24, आदेश दि. 04/11/2024 के अनुसार भू-अभिलेख अद्यतित



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11155949191

ग्राम: हरद्वारा			पटवारी हल्का: हरद्वारा			तहसील: रीठी			जिला: कटनी		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक संख्याक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुप्त तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियां 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
160235 2901	1/1/2 (S)		40.0000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0006/अ-20(3)/2023-24, आदेश दि. 28/08/2023 के अनुसार भू-अभिलेख अद्यतित कलेक्टर द्वारा प्र. क्र.0036/अ-20(3)/2024-25 एवं आदेश दिनांक02/12/2024के अनुसार दिनांक 04/12/2024 को खसरा टिप्पणी में परिवर्तन दर्ज न्यायालय कलेक्टर के प्रकरण क्र. 0036/अ-20(3)/2024-25, आदेश दि. 02/12/2024 के अनुसार भू-अभिलेख अद्यतित
81TUQ7 DD57F1 H0											श्रीमान न्यायालय कलेक्टर महोदय के रा प्र क्रमांक ३६/अ-२० (३)/२०२४ -२५ दिनांक २/१२/२०२४ के अनुसार इ एम् आई एल माइंस एंड मिनरल्स रिसोर्सेज लिमिटेड को रकबा ११६.५४ हेक्टर में से ४०.०० हेक्टर भूमि क्षतिपूर्ति वृक्षारोपण हेतु आवंटित की गयी है

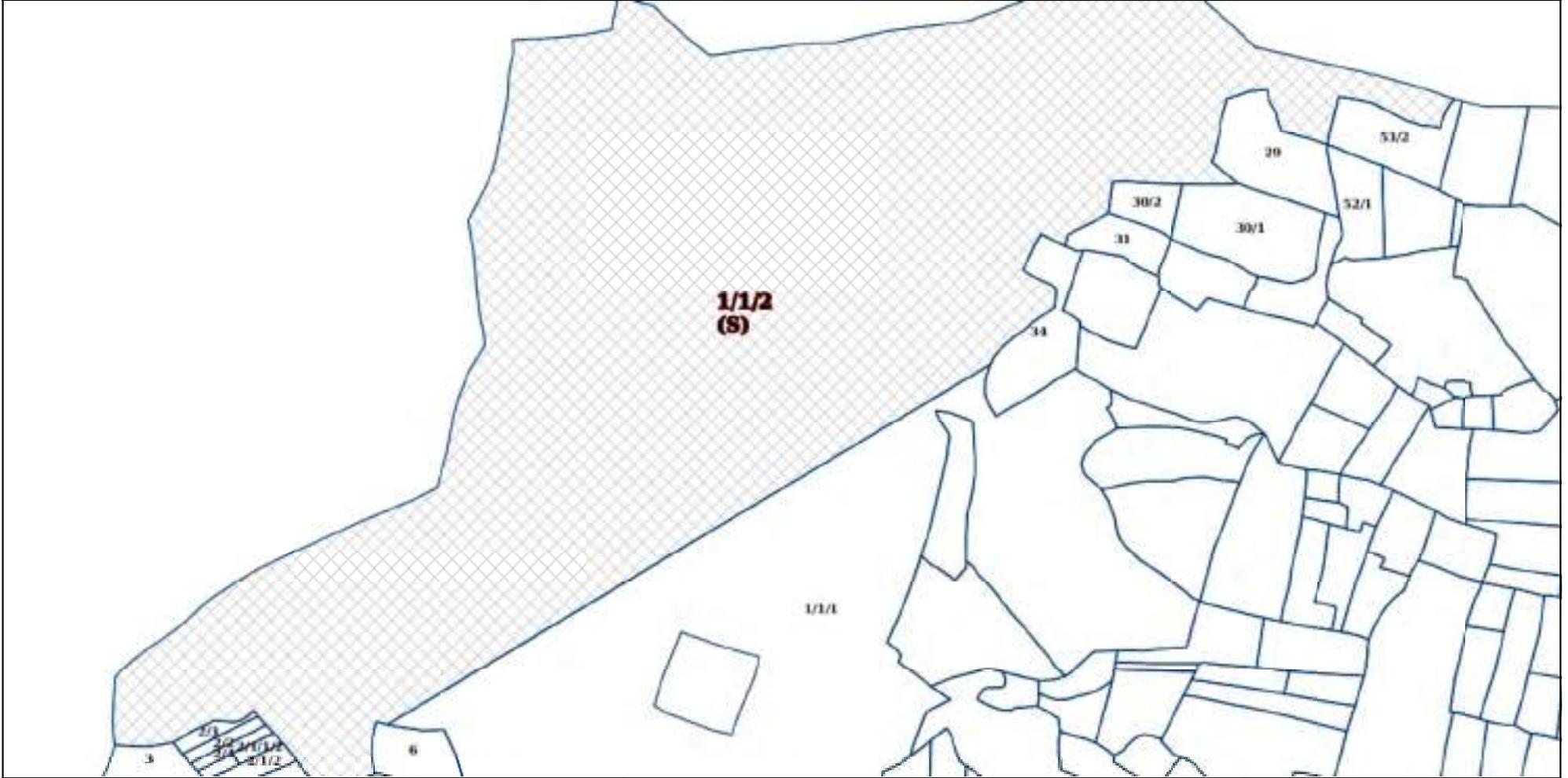


मध्यप्रदेश कांप्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 1115595021C

वर्ष: 2024-25

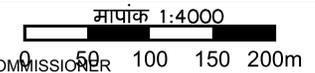
दिनांक: 04-03-2025 13:04:25



ब्लॉक सं.: गाम:हरद्वारा हल्का:हरद्वारा तहसील: रीठे जिला:कटनी

सर्वेक्षण सं.: 1/1/2(S) क्षेत्रफल:40.0000(हेक्ट.) भू.रा.शा:0

पुस्तक सं.: (पुस्तक सं.) का विवरण मध्यप्रदेश सरकार, इलाहाबाद



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LAND RECORDS MADHYA PRADESH 1
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Map Copy
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(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्ररूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11155951804

ग्राम: सिमरा			पटवारी हल्का: सिमरा कला			तहसील: रीठी			जिला: कटनी		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुप्त तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियां 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
160235 2888	26/2 (S)		10.0000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1						अनुविभागीय अधिकारी द्वारा प्र. क्र.0479/ब-121/2022-23 एवं आदेश दिनांक 16/02/2023के अनुसार दिनांक 08/05/2023 को खसरा टिप्पणी में परिवर्तन दर्ज कलेक्टर द्वारा प्र. क्र.0046/अ-20(3)/2024-25 एवं आदेश दिनांक 27/11/2024के अनुसार दिनांक 18/12/2024 को खसरा टिप्पणी में परिवर्तन दर्ज कलेक्टर द्वारा प्र. क्र.0037/अ-20(3)/2024-25 एवं आदेश दिनांक 02/12/2024के अनुसार दिनांक 04/12/2024 को खसरा टिप्पणी में परिवर्तन दर्ज न्यायालय कलेक्टर के प्रकरण क्र. 0037/अ-20(3)/2024-25, आदेश दि. 02/12/2024 के अनुसार भू-अभिलेख अद्यतित
81U37A DD56P LH0											अमृत सरोवर ०.४० हे० में निर्मित श्रीमान न्यायलय कलेक्टर महोदय के रा प्र क्रमांक ३७/अ- २० (३) /२०२४ -२५ आदेश दिनांक ०२/१२ २०२४ अनुसार इ एम् आई एल माईस एंड मिनरल्स रिसोर्सेस लिमिटेड रकबा ५५ .०२ हेक्ट में से १०.०० हेक्ट भूमि क्षति पूर्ती वृक्षारोपण हेतु म.प्र . शासन वन विभाग को हस्तांतरित की गयी है श्रीमान न्यायलय कलेक्टर महोदय के राजस्व प्रकरण क्रमांक ४६/अ-२० (३) /२०२४ -२५ आदेश दिनांक २७/११ २०२४ अनुसार म.प्र. जल निगम मर्यादित परियोजना क्रियान्वयन इकाई पन्ना को रकबा ५५ .०२ हे में से १२.०० हे भूमि क्षति पूर्ती वृक्षारोपण हेतु म.प्र. वन विभाग को हस्तांतरित की गयी है

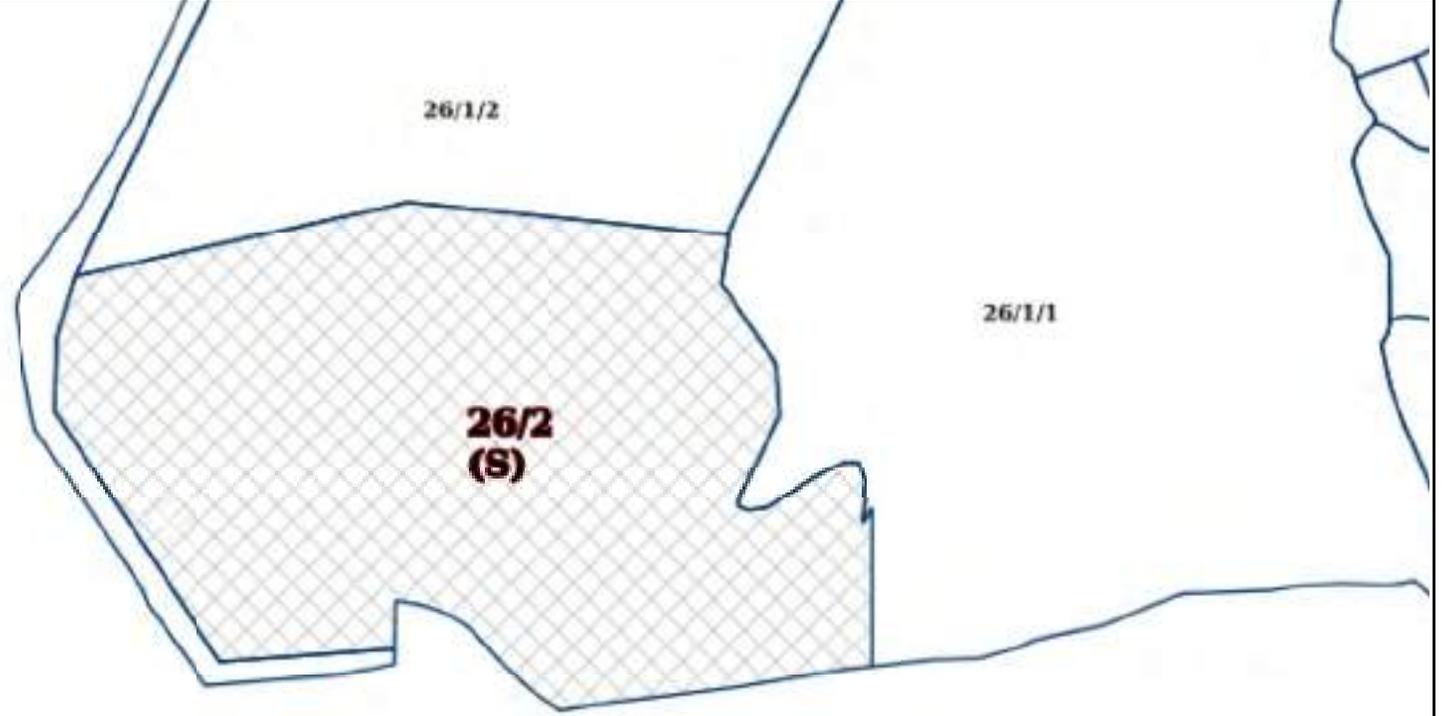


मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11155953435

वर्ष: 2024-25

दिनांक : 04-03-2025 13:11:01



ब्लॉक सं.:	ग्राम:सिमरा	हल्का:सिमरा कला	तहसील:रीठी	जिला:कटनी
सर्वेक्षण सं.: 26/2(S)	क्षेत्रफल:10.0000(हेक्ट.)	भू.रा.शा:0	मापांक 1:4000 (पृष्ठ आकार A4)	0 20 40 60 80 100 120 160m

भूस्वामी: (शासकीय) जल विभाग मध्यप्रदेश जलन प्रासकीय संस्था

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LAND RECORDS MADHYA PRADESH 1
Date: 2025.03.04 13:14:19 IST
Reason: Digital Extract of Land Record -
Map Copy
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(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अपिलेख
खसरा

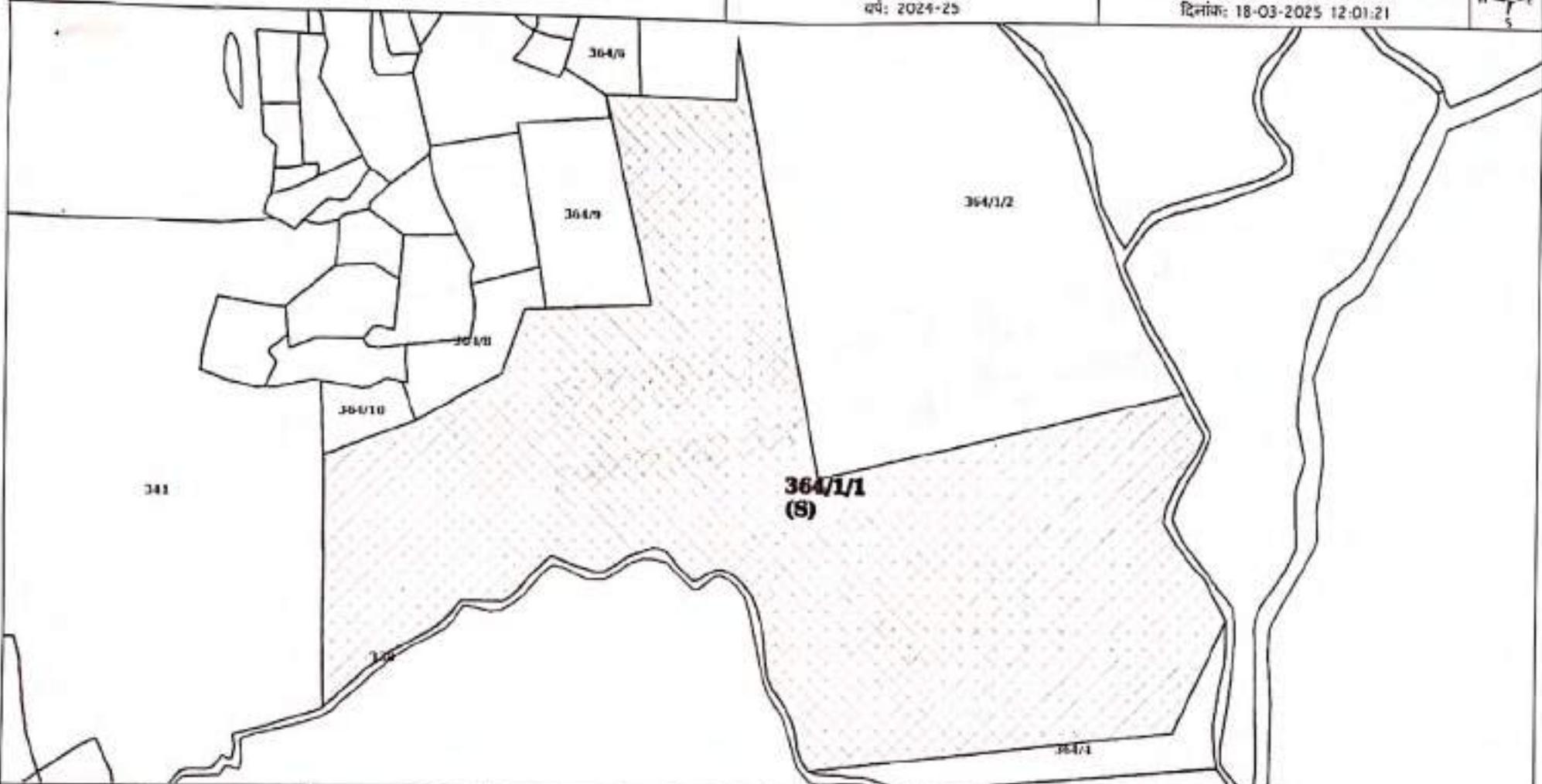
प्रमाण एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अपिलेख) नियम, 2020



CLR No. : 11158547023

ग्राम: कल्लेरा			पटवारी इल्का: वीरमपुरा			तहसील: बुकसरा			जिला: छतरपुर		वर्ष: 2024-2025
भूमि के भाग की सूचिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक / ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की याता में)	1. शेखस्तल (इंक्वेटर/वर्ग मीटर में) 2. भूमि उपयोग जिले के लिए निर्धारण किया गया है 3. भू-राजस्व/भू-पाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि का क्षेत्र	1. भू-अपिलेख पंजीकरण/सूचिकीकरण/सूचिकीकरण का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौल्यी इकाय (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर बिल्लुम तथा मन्थार 1. बंधक 2. दृष्टिबाधक 3. भू-अर्जन प्रक्रियाधीन	फसल के खारी		1. भूमि के सिंचाई सवधी प्राप्ति 2. भूमि पर खसरा/जुम 3. अन्य अभियुक्तियां 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टि में सुधार के आदेश
1	2	3	4	5	6	7	8	9	फसल 1. धारीक 2. खी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
629DYY DC/MS LH/6	384/1/ VIS)	30.0000 इंक्वेटर	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1							दि. 17/12/2020को खसरा टिप्पणी पटवारी द्वारा जोड़ा गया एवं तहसीलदार द्वारा अनुमोदन किया गया। न्यायालय कलेक्टर के प्रकरण क्र. 0587/अ-20(3)/2024-25, आदेश दि. 13/03/2025 के अनुसार भू-अपिलेख अधिनित। म.प्र. शासन इमारती लकड़ी न्यायालय कलेक्टर महोदय के प्रकरण क्रमांक 0002/अ-49/संवर्तन/2020-21 आदेश दिनांक 14/12/2020 के अनुसार 148.131 इंक्वेटर भूमि वन विभाग को आरक्षित किये जाने का आदेश पारित किया गया।



प्लॉक नं.:	ग्राम/बलोरा	तहसील/बिरम्पुरा	जिल्ला/मन्डलाह	डिस्ट्रिक्ट/उत्तरपुर
सर्वेक्षण नं.:	364/1/1(S)	क्षेत्रफल: 30,0000 (वर्ग मी.)	शुल्क नं. 0	

धुम्बाही: (ग्रामाधिकार) जल विभाग नवगठित जलन सहायकीय संस्था

आपाक 1:4000

(हस्ताक्षर)

टीका :-
 1. यह नक्शा केवल सर्वे की जानकारी के लिए है।
 2. इसका उपयोग किसी भी प्रकार का दावा करने के लिए नहीं किया जा सकता है।
 3. डिजिटली तैयार होने के लिए आई. टी. सेवा में अपना योगदान देना है।



मध्य प्रदेश कम्प्यूटरीकृत पू-अपिलेख
खसरा

प्रत्येक एक (नियम 6 देखिए)
मध्य प्रदेश पू-राजस्व संहिता (पू-सर्वेक्षण तथा पू-अपिलेख) नियम, 2020



CLR No. : 11158540266

ग्राम: कोरा			पटवारी हल्का: बीरसपुर		तहसील: खसरा			जिला: छतरपुर		वर्ष: 2024-2025			
भूमि के भाग की युक्ति आईडी	भूमि के भाग का प्रकार (सर्वसाधारण सव्याक/बालीक सव्याक)	पू-खण्ड संख्यांक (बलोक की दशा में)	1. खसरा/प्लॉट/वा/नॉट (नॉट में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. पू-राजस्व/पू-कटकर (नॉट में)	1. भूमि स्वामी का नाम, उसकी माता/पिता/पति का नाम तथा विवाह का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का धरा	1. शासकीय भू-संयोजन/प्लॉट/वा/नॉट का नाम तथा विवाह का पता 2. प्लॉट की अवधि 3. प्लॉट के अधीन क्षेत्र	मौल्यी कृपाक (कति कोई भी) का नाम, उसकी माता/पिता/पति का नाम तथा विवाह का पता	भूमि पर विद्यमान तथा प्रकार 1. बंधक 2. दृष्टिकोण 3. पू-अर्जन प्रक्रियाधीन	कतल के ब्यारे	1. भूमि के सिंगल/सकपी प्रारिथि 2. भूमि पर सारना/पुन 3. अन्य अधिकाधिक 4. वर्ष के दौरान कॉलम सव्याक (1) से (9) तक में प्रविष्टियों में सुधार के आदेश			
1	2	3	4	5	6	7	8	9	कतल के अधीन क्षेत्र 1. धारीक 2. ली 3. टाइट 4. अन्य		10	11	12
82A2d3 DCAG3 0H8	13/1/1 4(S)	55.0000 हेक्टेयर रु. 0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1									नामांतरण(अन्य)प्रकरण क्रमांक 01/अ-19(3)/पू/17-18 आ.दि. 12/10/2017 के अनुसार कलेक्टर द्वारा स्वीकार किया गया है। दि. 18/09/2020को खसरा टिप्पणी पटवारी द्वारा जोड़ा गया एवं तहसीलदार द्वारा अनुमोदन किया गया। दि. 17/12/2020को खसरा टिप्पणी पटवारी द्वारा जोड़ा गया एवं तहसीलदार द्वारा अनुमोदन किया गया। न्यायालय कलेक्टर के प्रकरण क्र. 0023/अ-20(1)/2021-22, आदेश दि. 01/10/2021 के अनुसार पू-अपिलेख अद्यतित। न्यायालय कलेक्टर के प्रकरण क्र. 0587/अ-20(3)/2024-25, आदेश दि. 13/03/2025 के अनुसार पू-अपिलेख अद्यतित। पू.प्र.शासन वनभूमि-57.21 बंदर डायमंड प्रोजेक्ट हेतु रकबा 3.2 939 हे आरक्षित न्यायालय कलेक्टर महोदय छतरपुर का आदेश प्र क्र 009/अ 49/व्यवर्तन/20-21 आदेश दिनांक 06/01/2020 के अनुसार न्यायालय कलेक्टर महोदय के प्रकरण क्रमांक 0002/अ-49/व्यवर्तन/2020-21 आदेश दिनांक 14/12/2020 के अनुसार 84.000 हेक्टेयर भूमि वन विभाग को आरक्षित किये जाने का आदेश पारित किया गया।

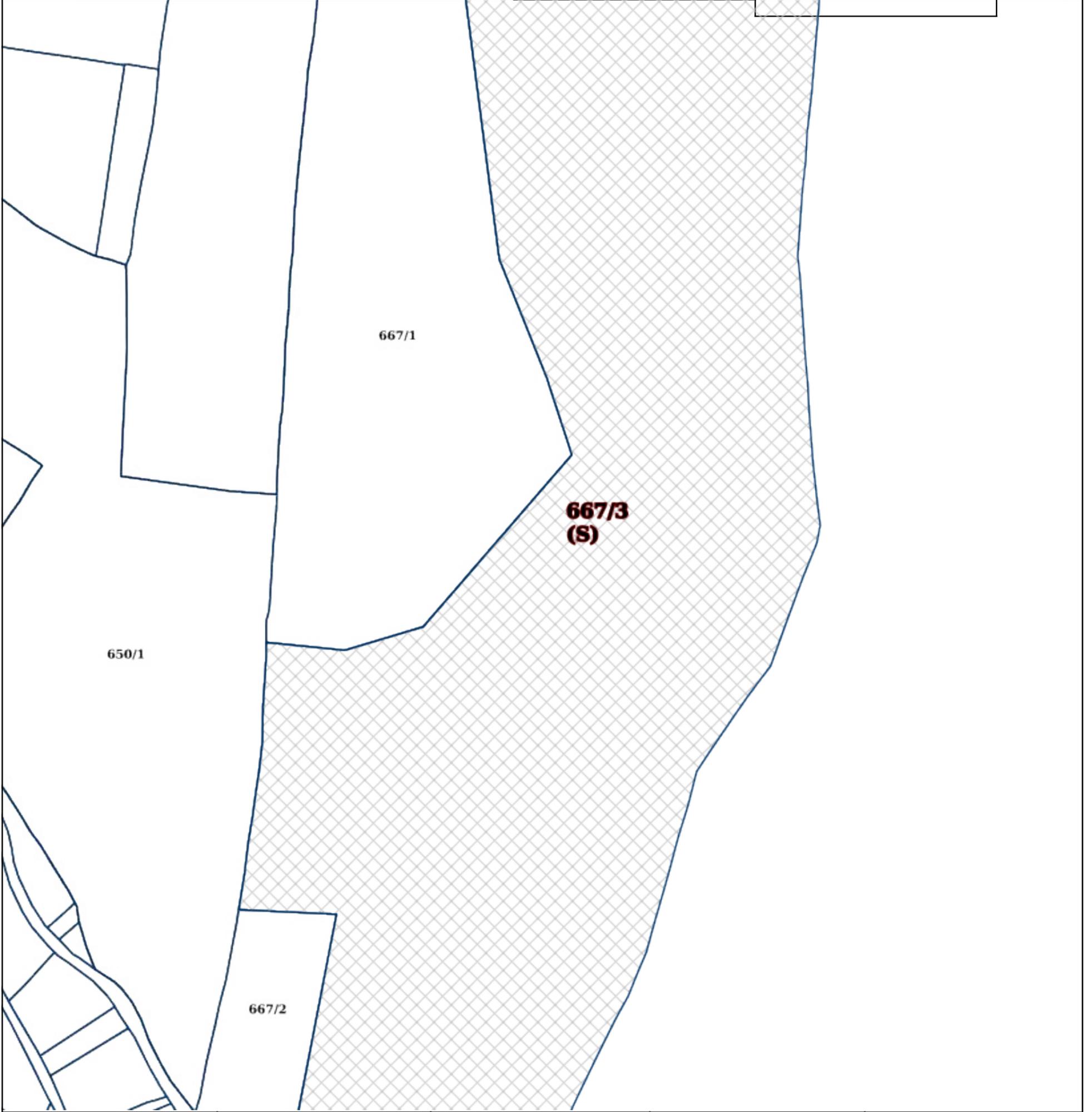


मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

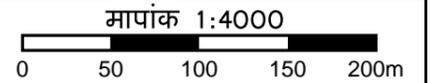
सी.एल.आर नं. : 11155703597

वर्ष: 2024-25

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ब्लॉक सं.	ग्राम	हल्का	तहसील	जिला
	बरखेरा खुमान	बरखेरा खुमान	सागर	सागर
सर्वेक्षण सं.	क्षेत्रफल	भू. रा. श		
667/3(S)	52.7800(हेक्ट.)	0		



भूमिदाता (शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था

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(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

CLR No. : 11155701323

ग्राम: बरखेरा खुमान			पटवारी हत्का: बरखेरा खुमान			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना / वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
160905 3322	667/3 (S)		52.7800 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्य प्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0127/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित इमारती एवं जलाऊ लकड़ी के लिये
81S3Q NDBLH QFH0											



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11155701323

ग्राम: बरखेरा खुमान			पटवारी हत्का: बरखेरा खुमान			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (₹. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
1609053322	667/3 (S)		52.7800 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0127/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित इमारती एवं जलाऊ लकड़ी के लिये

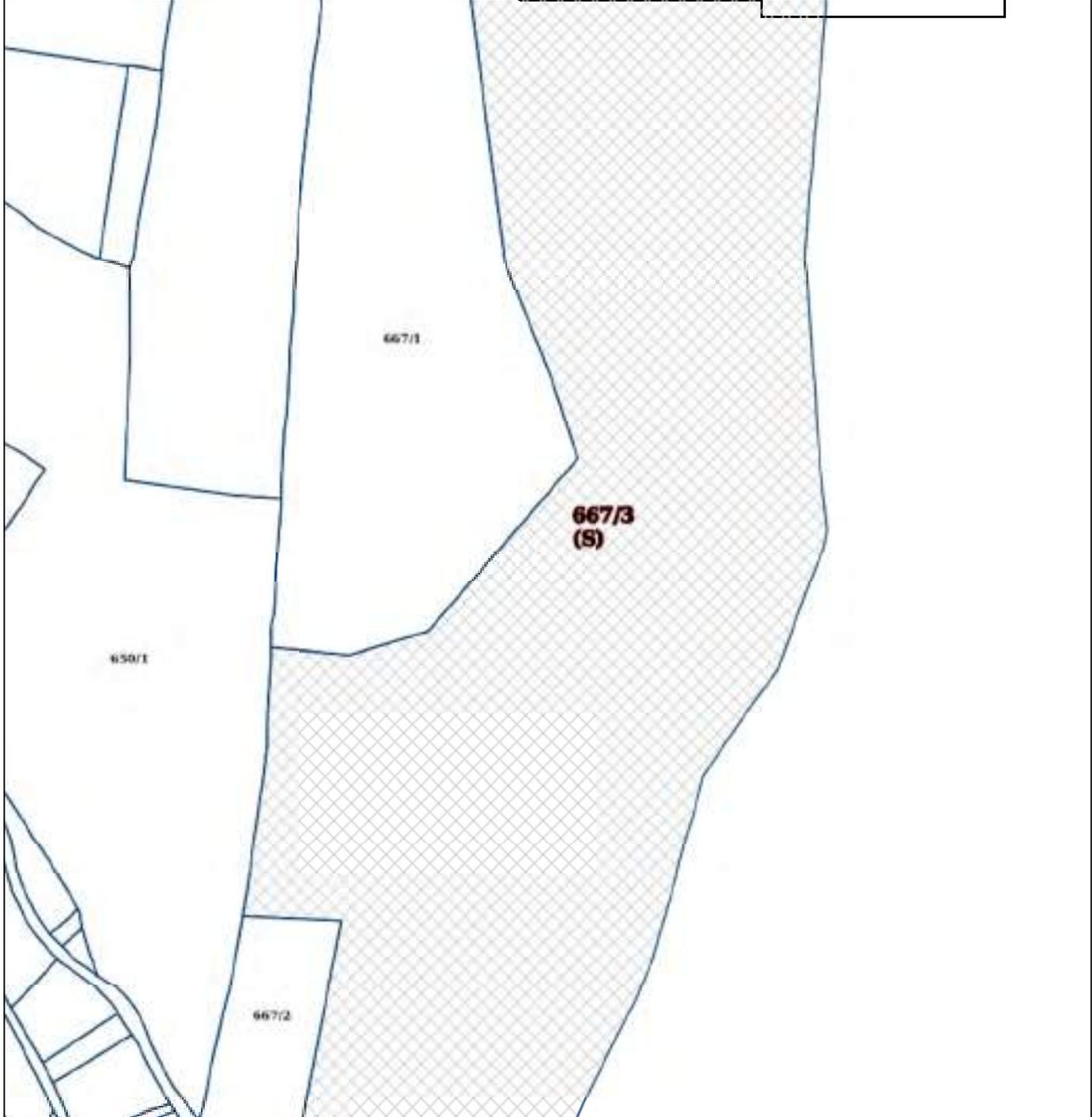


मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

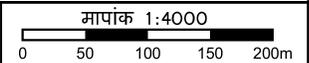
सी.एल.आर नं. : 11155703597

वर्ष: 2024-25

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ब्लॉक सं.	ग्राम	हल्का	तहसील	जिला
	बरखेरा खुमान	बरखेरा खुमान	सागर	सागर
सर्वेक्षण सं.	क्षेत्रफल		भू. रा. श.	
667/3(S)	52.7800(हेक्टर.)		0	



भूहोता (व्यक्तिगत) वन विभाग, मध्यप्रदेश शासन, आसानीय, भुवनेश्वर

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मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख

खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11155704846

ग्राम: ढाना नखावली			पटवारी हल्का: ढाना नखावली			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025			
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक संख्या में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश			
1	2	3	4	5	6	7	8	9	फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल		10	11	12
160905 3287	421/1/ 2 (S)		35.0000 हेक्टेयर	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1									
81T6EP DBY8J QH0			रु.0.00											
												न्यायालय कलेक्टर के प्रकरण क्र. 0122/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित		
												रकवा 35.00 हेक्टर में पंचवन लगा है ।		



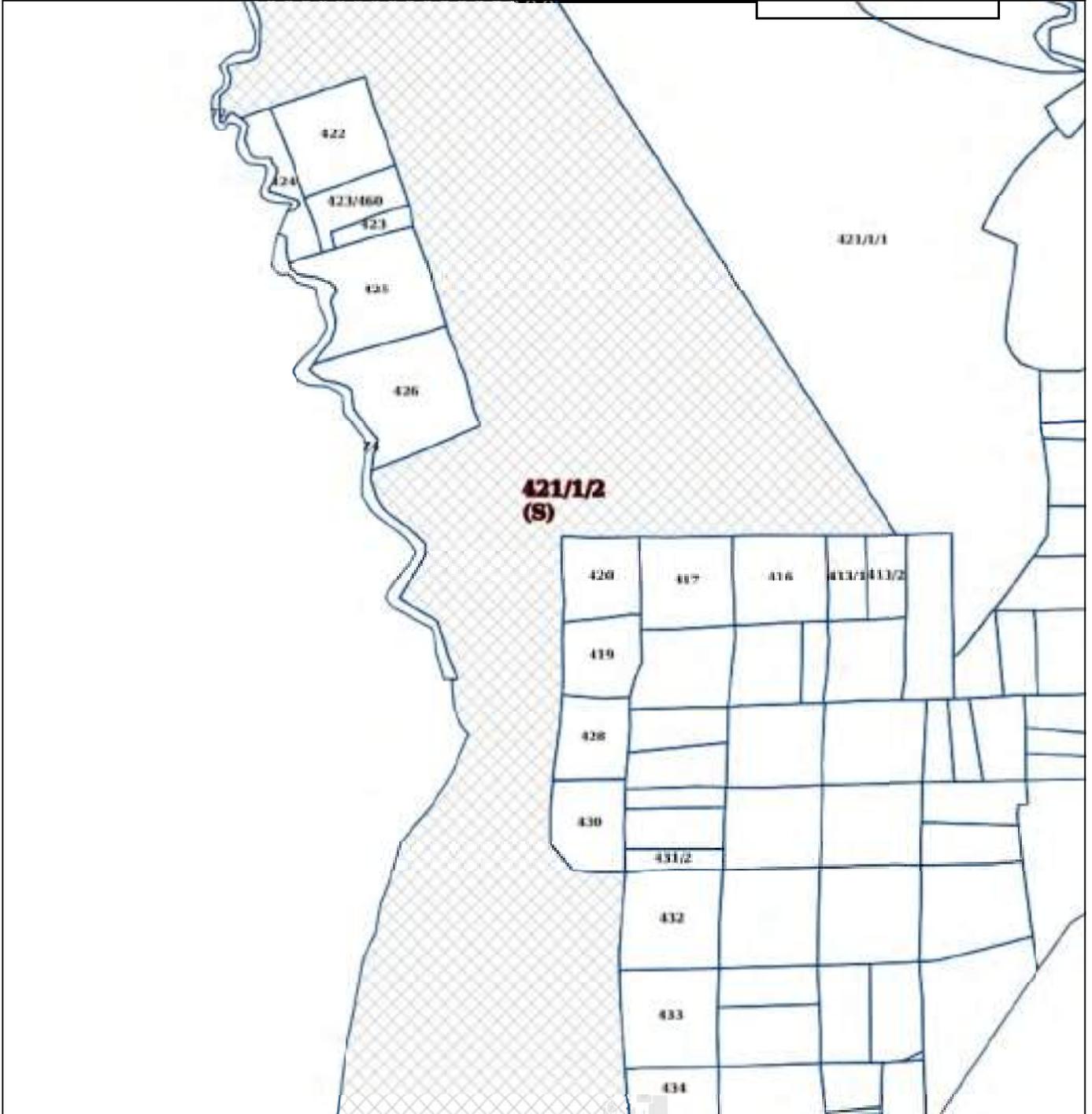
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सी.एल.आर नं. : 11155707322

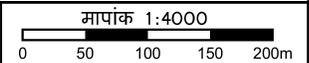


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ब्लॉक सं.	ग्राम	हल्का	तहसील	जिला
	ढाना नरयावली	ढाना नरयावली	सागर	सागर
सर्वेक्षण सं.	क्षेत्रफल		भू. रा. श.	
421/1/2(S)	35.0000(हेक्टर.)		0	



भूस्वामी (आधारपीठ) को वन विभाग, मध्यप्रदेश शासन आसवीस सूचना

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मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11155715229

ग्राम: जेरवारा			पटवारी हल्का: जेरवारा			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता /पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
160905 1296	264/1/ 2 (S)		65.0000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0120/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित
81UJ60 DBYKH MH0											



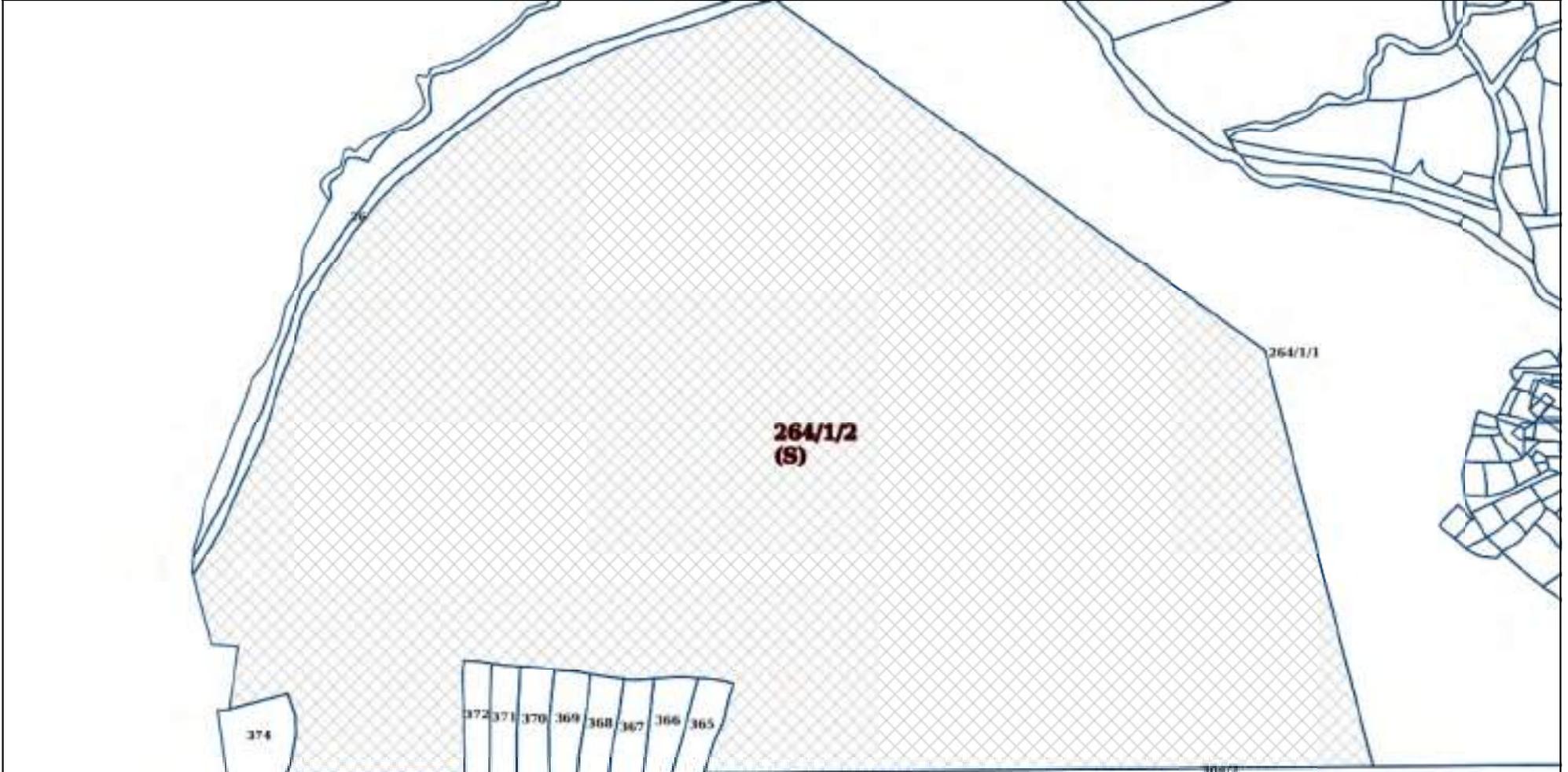
मध्यप्रदेश कांप्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11155716172



वर्ष: 2024-25

दिनांक: 03-03-2025 13:02:08



ब्लॉक सं.:	ग्राम:जेरवारा	हल्का:जेरवारा	तहसील: सागर	जिला:सागर
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सर्वेक्षण सं.:	264/1/2(S)	क्षेत्रफल:65.0000(हेक्ट.)	भू.रा.शा:0
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<p>पुस्तक सं.: (पुस्तक सं.) का विवरण माध्यम से प्राप्त किया गया है।</p>	<p>मापांक 1:4000</p> <p>0 50 100 150 200m</p>
	<p>Digitally signed by DS COMMISSIONER LAND RECORDS MADHYA PRADESH 1 Date: 2025.03.03 13:03:15 IST Reason: Digital Extract of Land Record - Map Copy CLR No. : 11155716172</p>

(हस्ताक्षर)

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मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

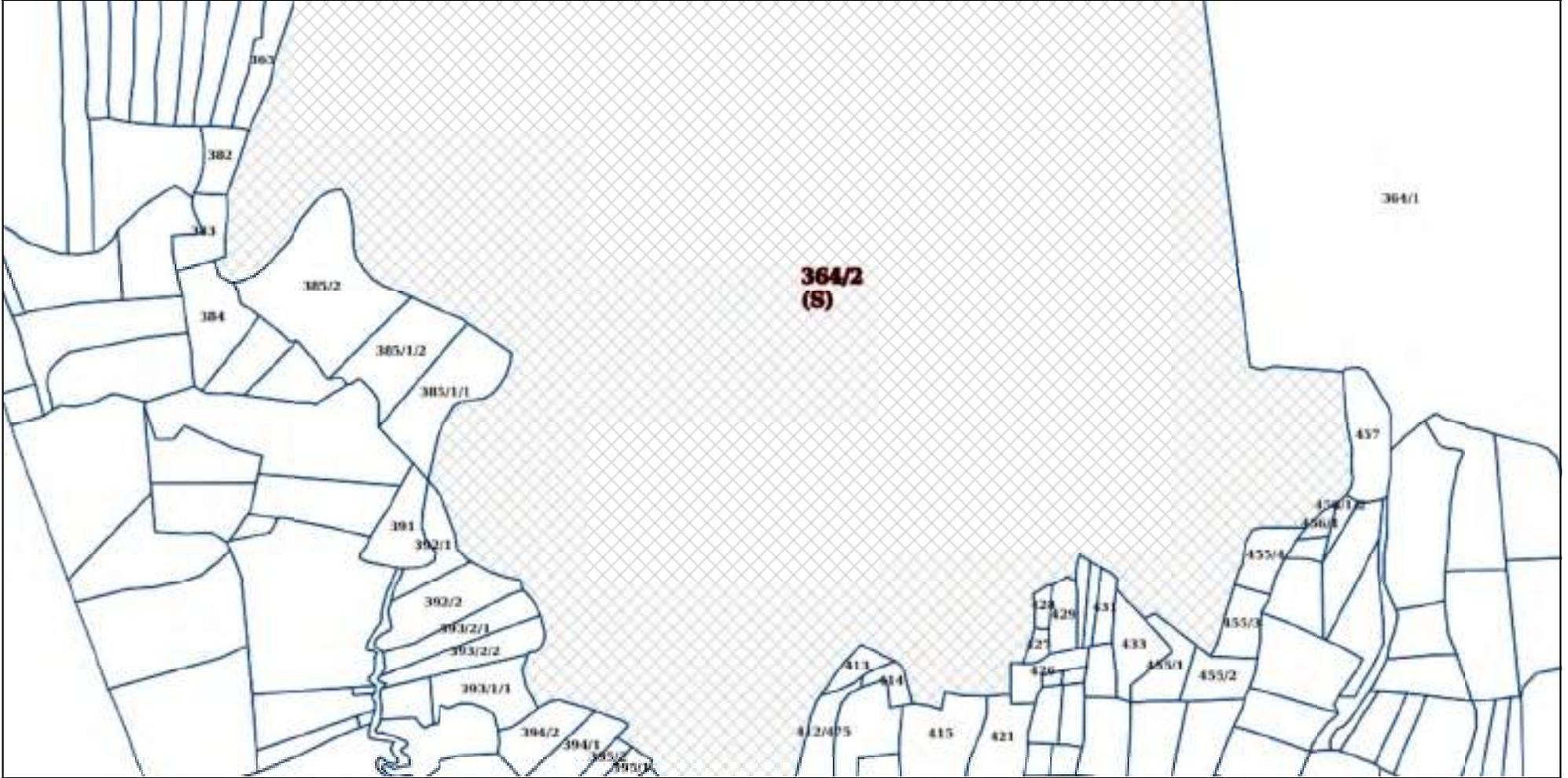
प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11155717289

ग्राम: जेरवारा			पटवारी हल्का: जेरवारा			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता /पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
160905 1342	364/2 (S)		70.0000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0124/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित
81UBA SDBYP 6RH0											



ब्लॉक सं.:	ग्राम:जेरवारा	हल्का:जेरवारा	तहसील: सागर	जिला:सागर
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सर्वेक्षण सं.:	364/2(S)	क्षेत्रफल:70.0000(हेक्ट.)	भू.रा.शा:0
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<p>बुरवाणी: (साथकीम) का निम्न माप्यंत्रण वापस हाथकीम वापस</p>	<p>मापांक 1:4000</p>
	<p>Digitally signed by DS COMMISSIONER LAND RECORDS MADHYA PRADESH 1 Date: 2025.03.03 13:45:16 IST Reason: Digital Extract of Land Record - Map Copy CLR No. : 11155739833</p>

(हस्ताक्षर)

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मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11155781791

ग्राम: मकरोनयिा मुहाल			पटवारी हत्का: गढ़पहरा मुहाल			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे	फसल के अधीन क्षेत्रफल	1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
1	2	3	4	5	6	7	8	9	10	11	12
160905 3276	1/5 (S)		115.7350 हेक्टेयर	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0121/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित
81S789 DBLJH HH0			रु.0.00								निस्तार पत्रक के अनु. चरोखर तिगड़डा 2 चादा 9 ना. दु. चीरा 12



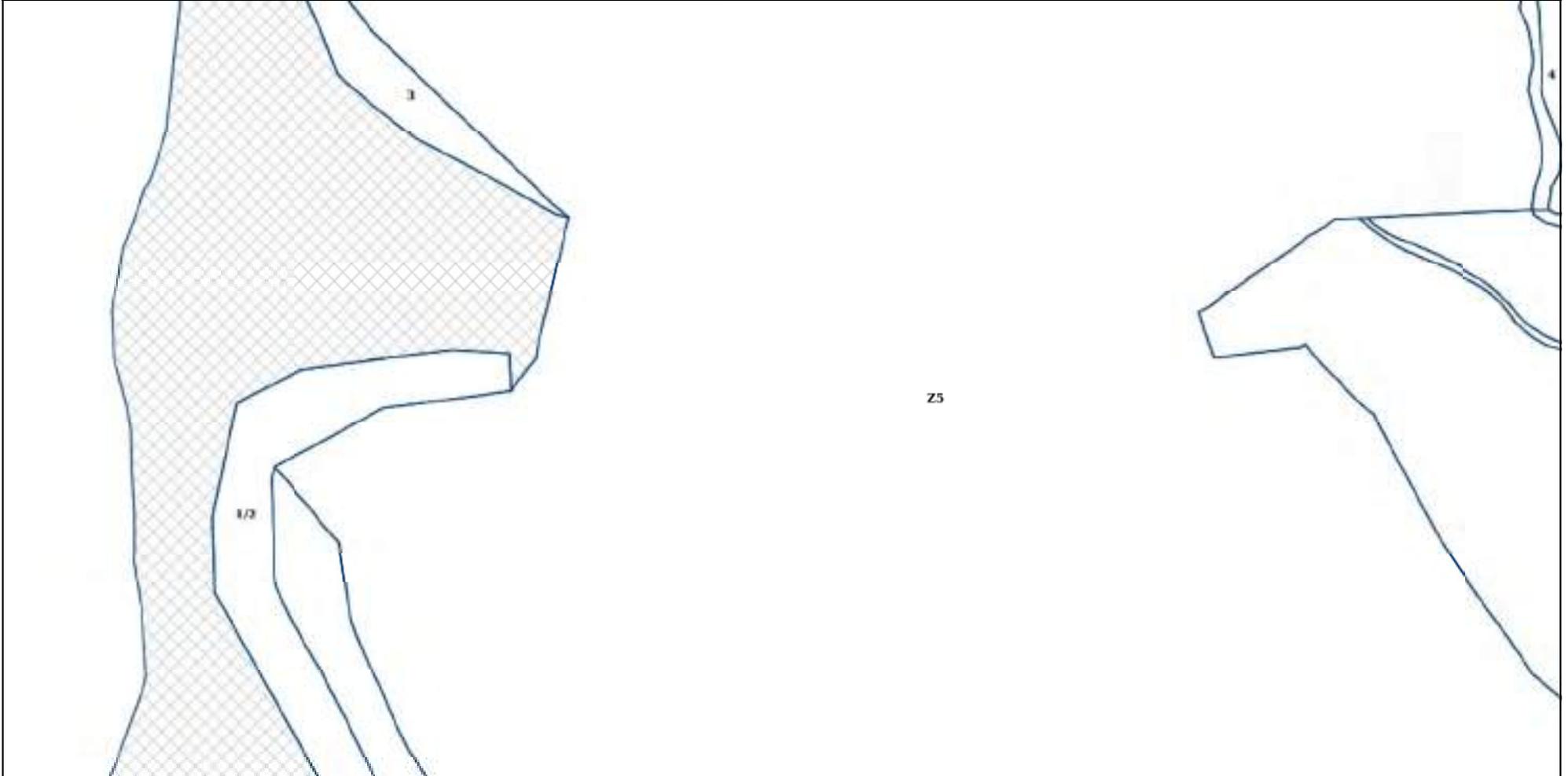
मध्यप्रदेश कांप्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11155782374



वर्ष: 2024-25

दिनांक: 03-03-2025 15:06:49



ब्लॉक सं.:	ग्राम: मकरोनया मुहल	हल्का: गढ़पहरा मुहल	तहसील: सागर	जिला: सागर
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सर्वेक्षण सं.:	1/5(S)	क्षेत्रफल: 115.7350 (हेक्ट.)	भू.रा.शा: 0
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<p>बुरवाणी: (साथसेम) का किलर मापकरवा हासन हाथसेम हाथ</p>	<p>मापांक 1:4000</p> <p>0 50 100 150 200m</p>
	<p>Digitally signed by DS COMMISSIONER LAND RECORDS MADHYA PRADESH 1 Date: 2025.03.03 15:07:50 IST Reason: Digital Extract of Land Record - Map Copy CLR No. : 11155782374</p> <p>(हस्ताक्षर)</p>

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मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11155731033

ग्राम: सडेरी			पटवारी हत्का: सडेरी			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025			
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश			
1	2	3	4	5	6	7	8	9	फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल		10	11	12
160905 3221	20/2 (S)		10.9500 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1									न्यायालय कलेक्टर के प्रकरण क्र. 0128/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित

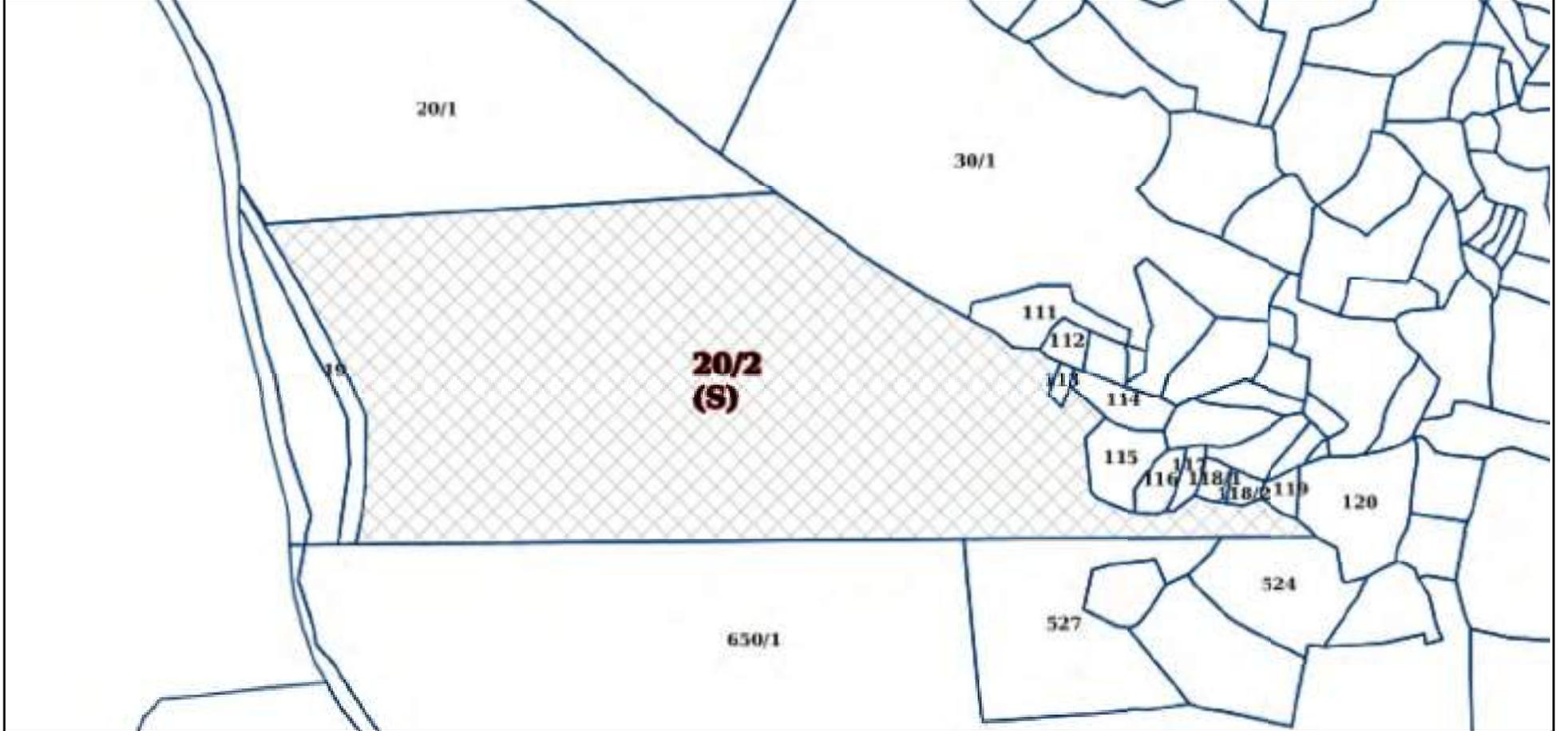


मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11155719805

वर्ष: 2024-25

दिनांक : 03-03-2025 13:12:30



ब्लॉक सं.:	गाम:सडेरी	हल्का:सडेरी	तहसील:सागर	जिला:सागर
सर्वेक्षण सं.: 20/2(S)	क्षेत्रफल:10.9500(हेक्ट.)	भू.रा.शा:0	मापांक 1:4000 (पृष्ठ आकार A4)	0 20 40 60 80 100 120 160m

भूस्वामी: (शासकीय) जल विभाग मध्यप्रदेश जलन प्रासकीय संस्था

Digitally signed by DS COMMISSIONER
LAND RECORDS MADHYA PRADESH 1
Date: 2025.03.03 13:15:05 IST
Reason: Digital Extract of Land Record -
Map Copy
CLR No. : 11155719805 (हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020



CLR No. : 11155731038

ग्राम: सडेरी			पटवारी हत्का: सडेरी			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025			
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्याक/ब्लॉक संख्याक)	भू-खण्ड संख्याक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विल्लंगन तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना /वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश			
1	2	3	4	5	6	7	8	9	फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल		10	11	12
160905 1318	650/1 (S)		28.9000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था	1									न्यायालय तहसीलदार के प्रकरण क्र. 0128/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित
81TADF DBZZT 0H0														



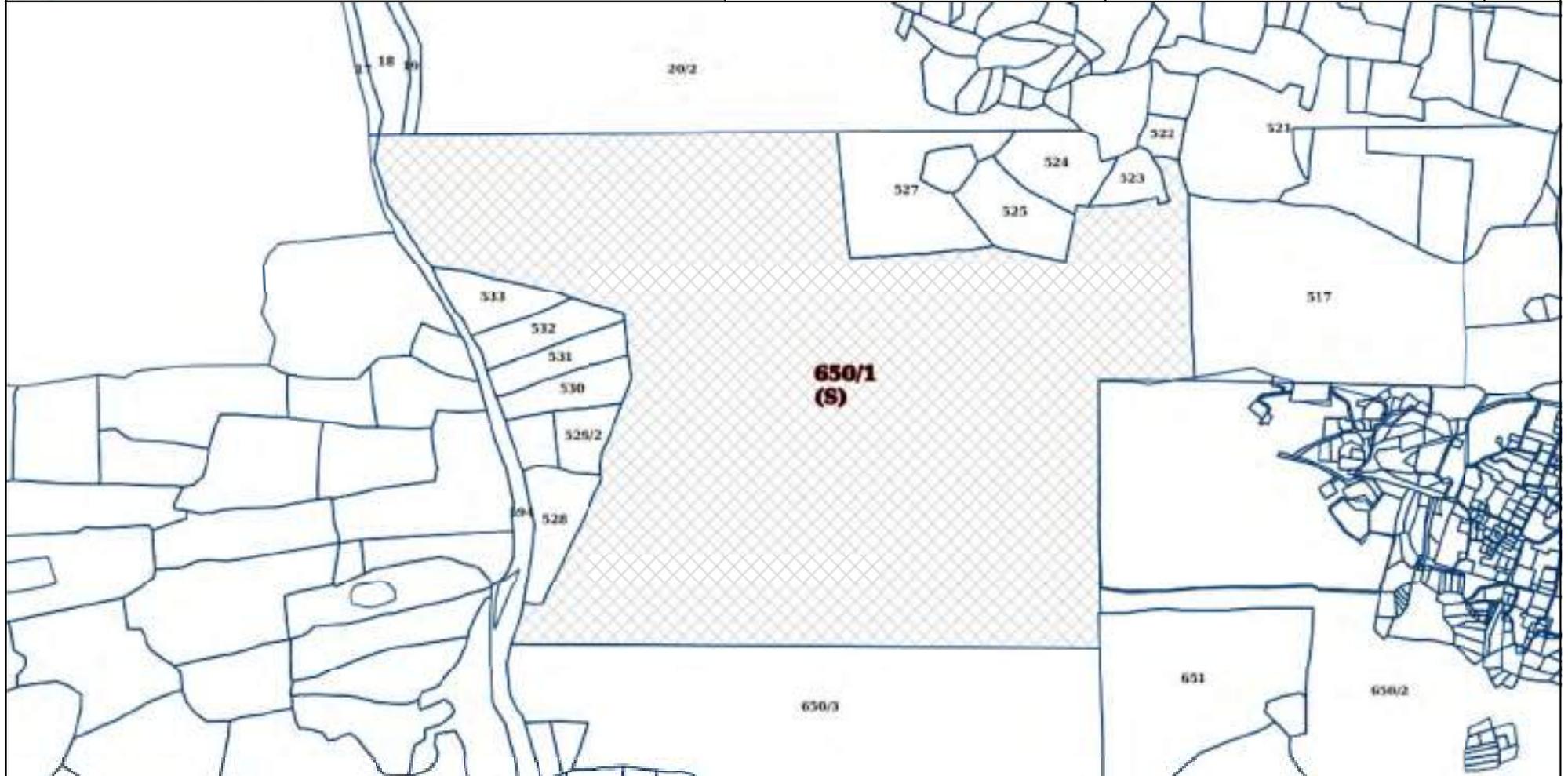
मध्य प्रदेश कांप्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11155719845



वर्ष: 2024-25

दिनांक: 03-03-2025 13:12:31



ब्लॉक सं.:	ग्राम: सडेरी	हल्का: सडेरी	तहसील: सागर	जिला: सागर
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सर्वेक्षण सं.:	650/1(S)	क्षेत्रफल: 28.9000 (हेक्ट.)	भू.रा.शा: 0
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<p>पुस्तक सं.: (पुस्तक सं.) का विवरण राज्य सरकार द्वारा प्रदान किया गया है।</p>	<p>मापांक 1:4000</p> <p>0 50 100 150 200m</p>
	<p>Digitally signed by DS COMMISSIONER LAND RECORDS MADHYA PRADESH 1 Date: 2025.03.03 13:15:06 IST Reason: Digital Extract of Land Record - Map Copy CLR No. : 11155719845</p>

(हस्ताक्षर)

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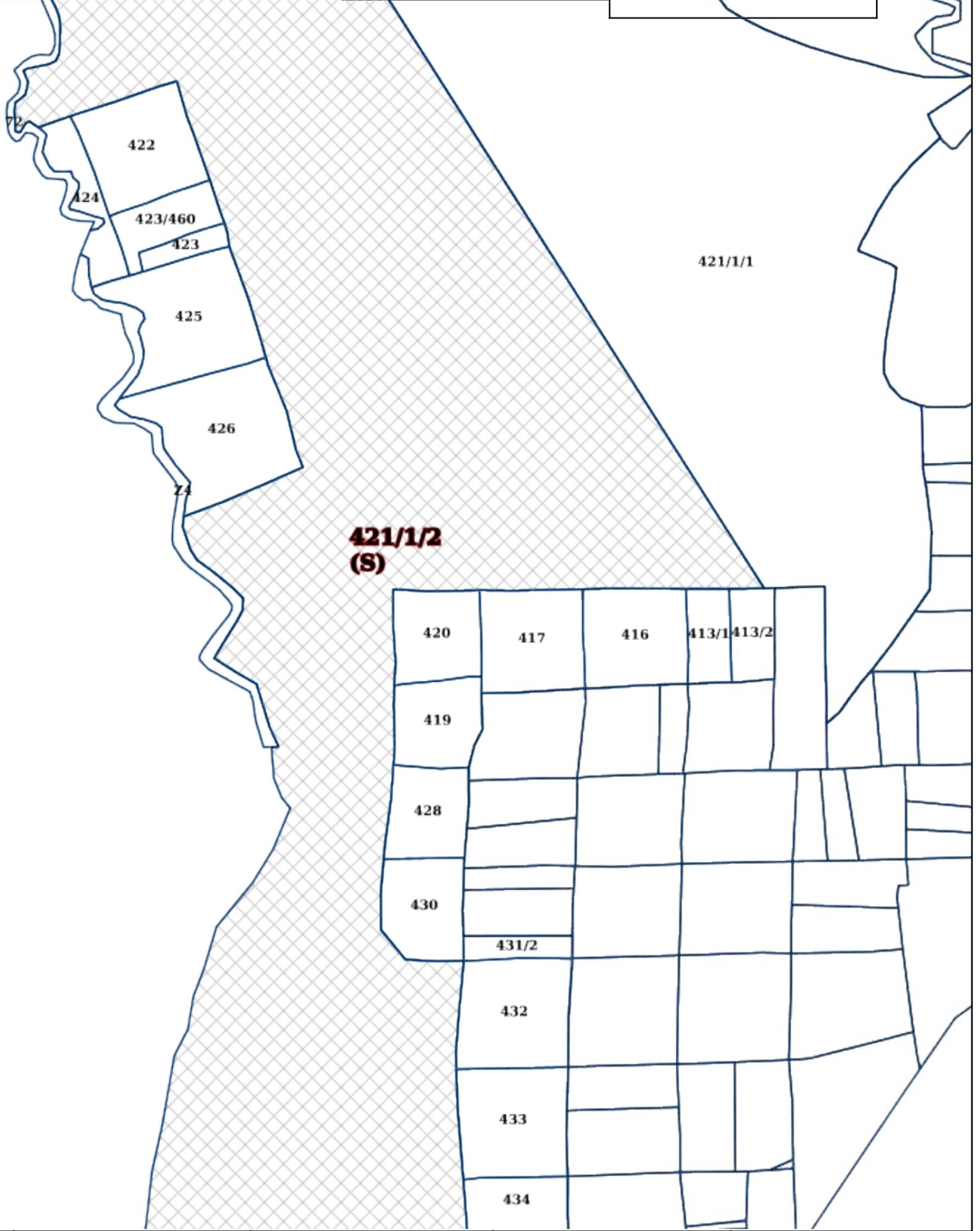
मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्ररूप एक (नियम 6 देखिए)

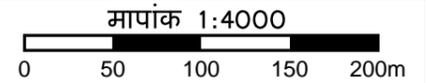
मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

CLR No. : 11155704846

ग्राम: ढाना नरयावली			पटवारी हल्का: ढाना नरयावली			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौलवी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना / वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
160905 3287	421/1/ 2 (S)		35.0000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्य प्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0122/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित रकवा 35.00 हेक्टर में पंचवन लगा हैं ।
81T6EP DBY8J QH0											



ब्लॉक सं.	ग्राम	हल्का	तहसील	जिला
	ढाना नरयावली	ढाना नरयावली	सागर	सागर
सर्वेक्षण सं.	क्षेत्रफल	भू. रा. श		
421/1/2(S)	35.0000(हेक्ट.)	0		



भू-सूचना (शासकीय) रजिस्ट्रार मध्यप्रदेश शासन शासकीय संस्था

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Map Copy
CLR No. : 11155707322

(हस्ताक्षर)



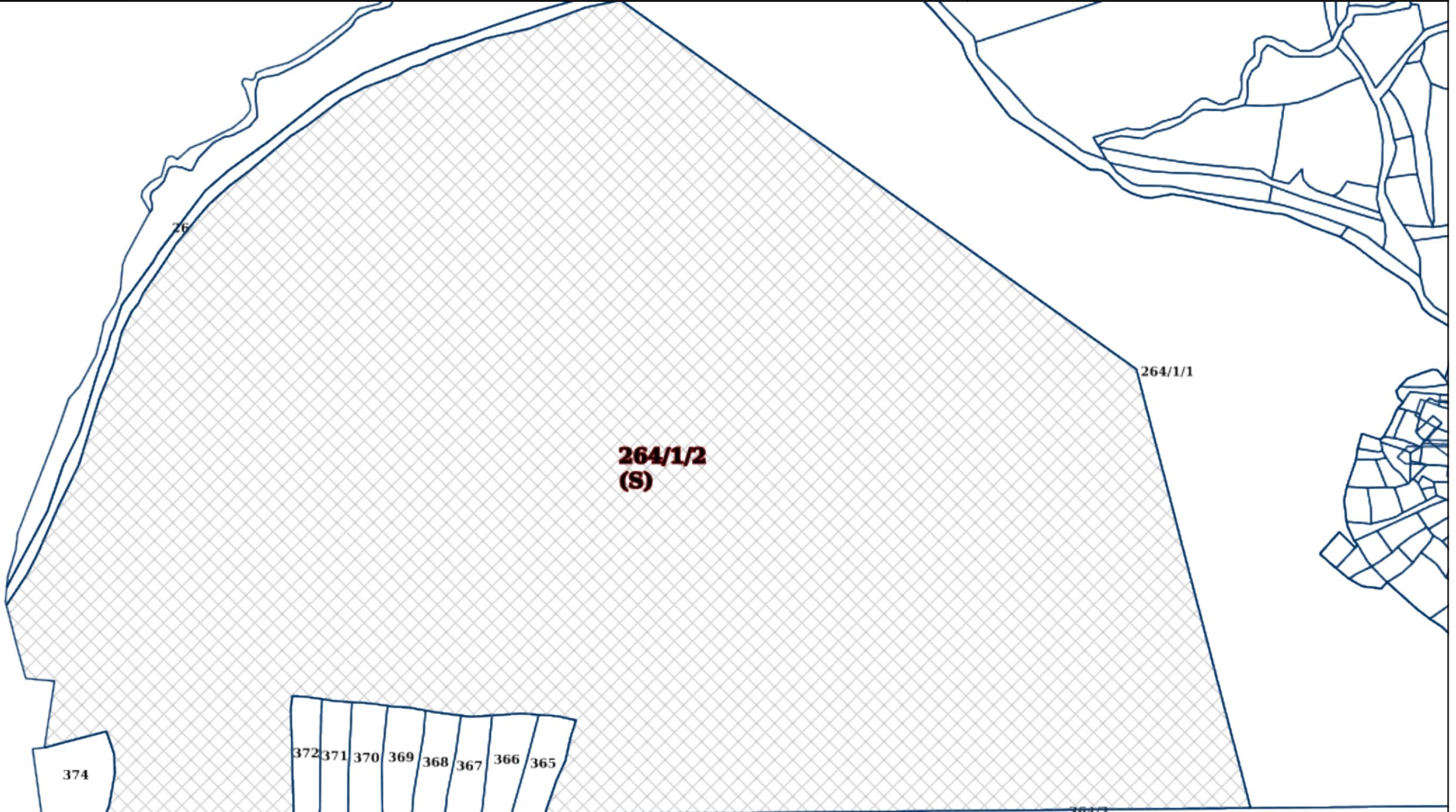
मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

CLR No. : 11155717289

ग्राम: जेखारा			पटवारी हत्का: जेखारा			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौलवी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना / वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
160905 1342	364/2 (S)		70.0000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्य प्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0124/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित
81UBA SDBYP 6RH0											



ब्लॉक सं.:	ग्राम:जेरवारा	हल्का:जेरवारा	तहसील: सागर	जिला:सागर
सर्वेक्षण सं.:	264/1/2(S)	क्षेत्रफल:65.0000(हेक्ट.)	भू.रा.शा:0	

भूमिदाता (शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था

मापांक 1:4000

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 Map Copy
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(हस्ताक्षर)



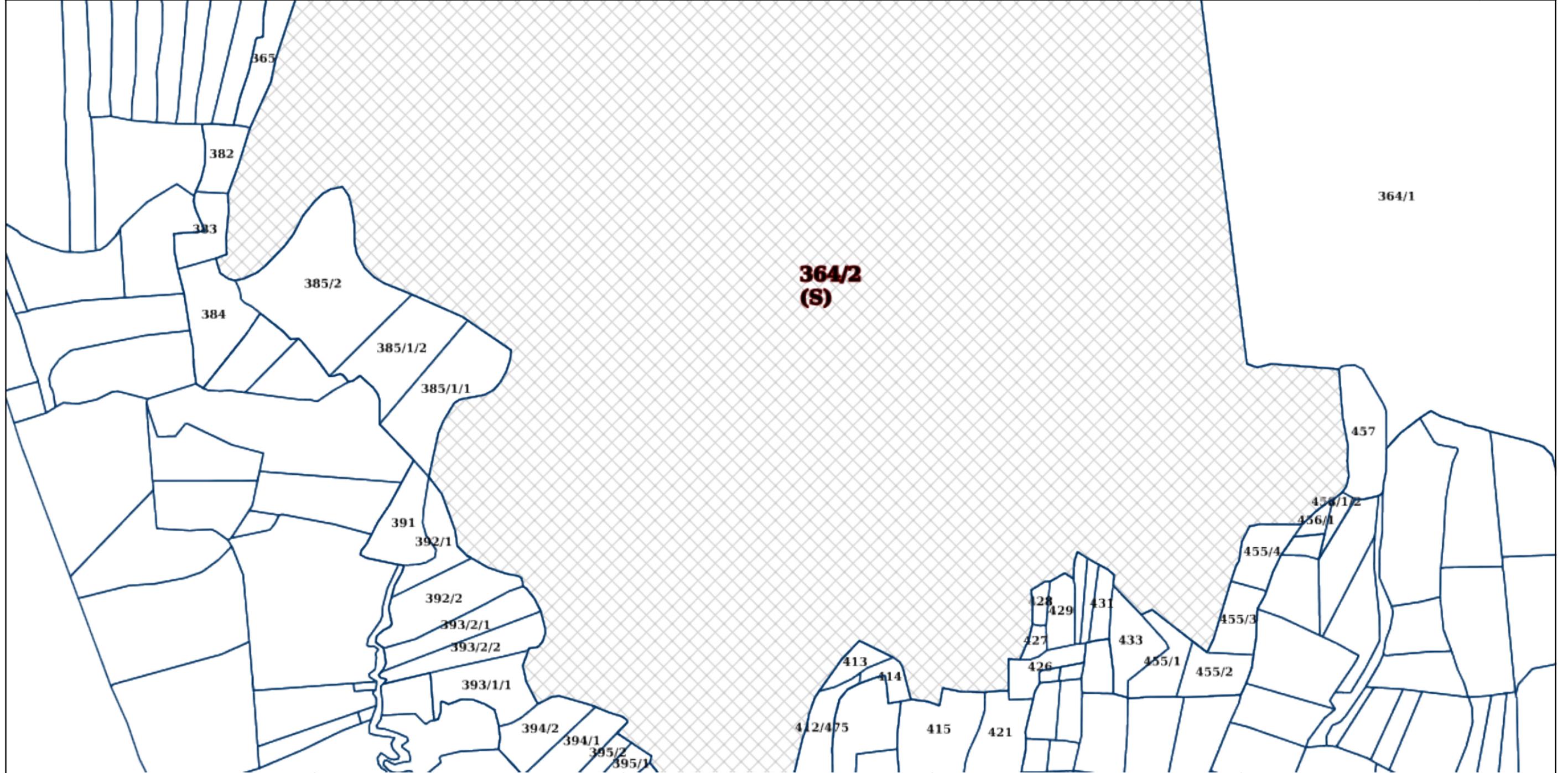
मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

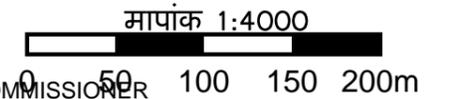
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ग्राम: जेखारा			पटवारी हत्का: जेखारा			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौलवी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना / वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
160905 1296	264/1/ 2 (S)		65.0000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्य प्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0120/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित
81UJ60 DBYKH MH0											



ब्लॉक सं.:	ग्राम:जेरवारा	हल्का:जेरवारा	तहसील: सागर	जिला:सागर
सर्वेक्षण सं.:	364/2(S)	क्षेत्रफल:70.0000(हेक्ट.)	भू.रा.शा:0	

भूमि विभाग (शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था



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(हस्ताक्षर)



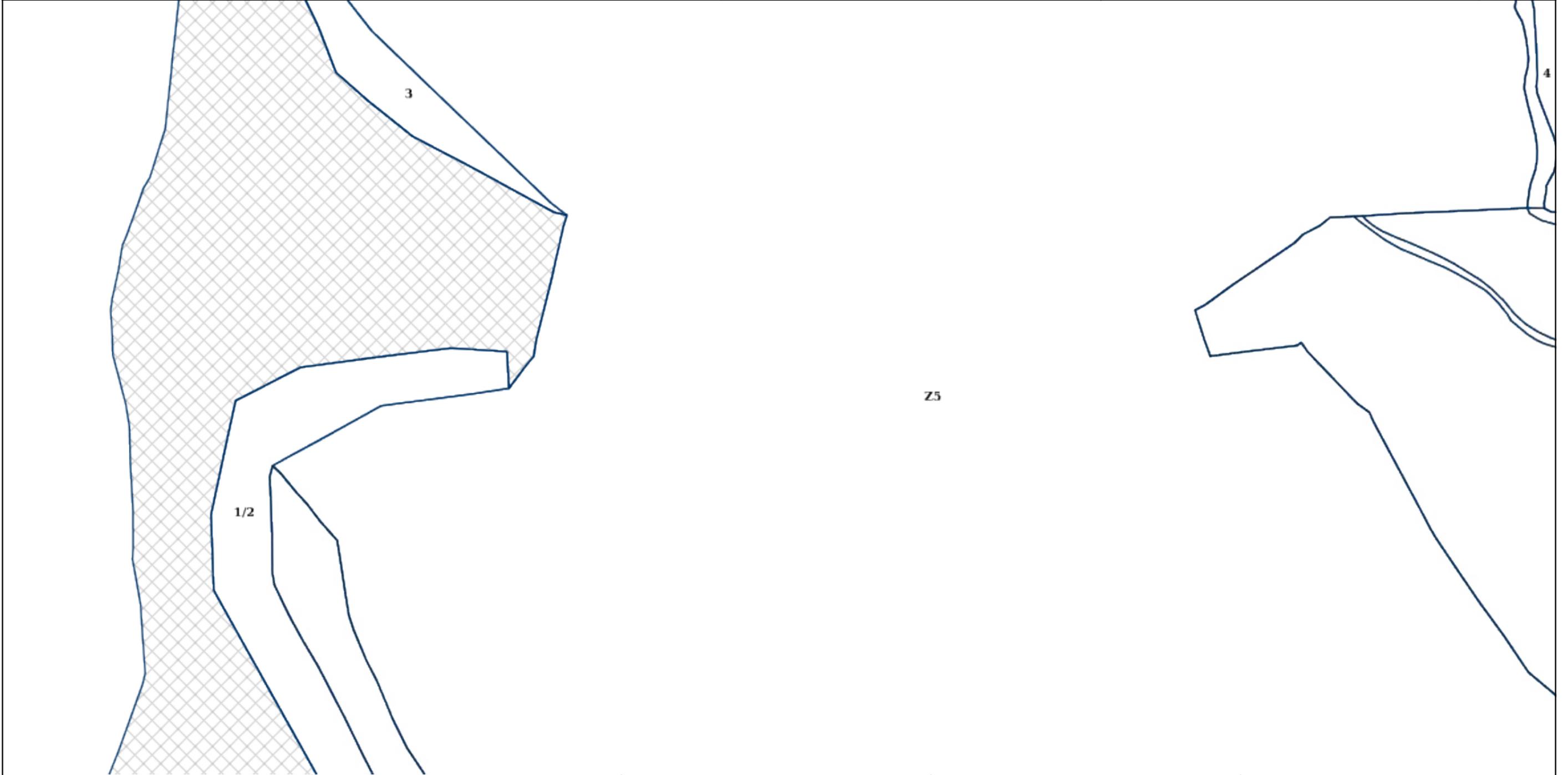
मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

CLR No. : 11155781791

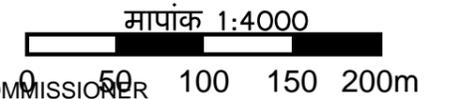
ग्राम: मकरोनया मुहाल			पटवारी हल्का: गढ़पहरा मुहाल			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौखी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना / वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
160905 3276	1/5 (S)		115.7350 हेक्टेयर	(शासकीय) वन विभाग मध्य प्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0121/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित
81S789 DBLJH HH0			रु.0.00								निस्तार पत्रक के अनु. चरोखर तिगड़डा 2 चादा 9 ना. दु. चीरा 12



ब्लॉक सं.:	ग्राम:मकरोनयिा मुहाल	हल्का:गढपहरा मुहाल	तहसील: सागर	जिला:सागर
सर्वेक्षण सं.:	1/5(S)	क्षेत्रफल:115.7350(हेक्ट.)	भू.रा.शा:0	

भूमिशासकीय विभाग मध्यप्रदेश शासन शासकीय संस्था

Digitally signed by DS COMMISSIONER
LAND RECORDS MADHYA PRADESH 1
Date: 2025.03.03 15:07:50 IST
Reason: Digital Extract of Land Record -
Map Copy
CLR No. : 11155782374



(हस्ताक्षर)

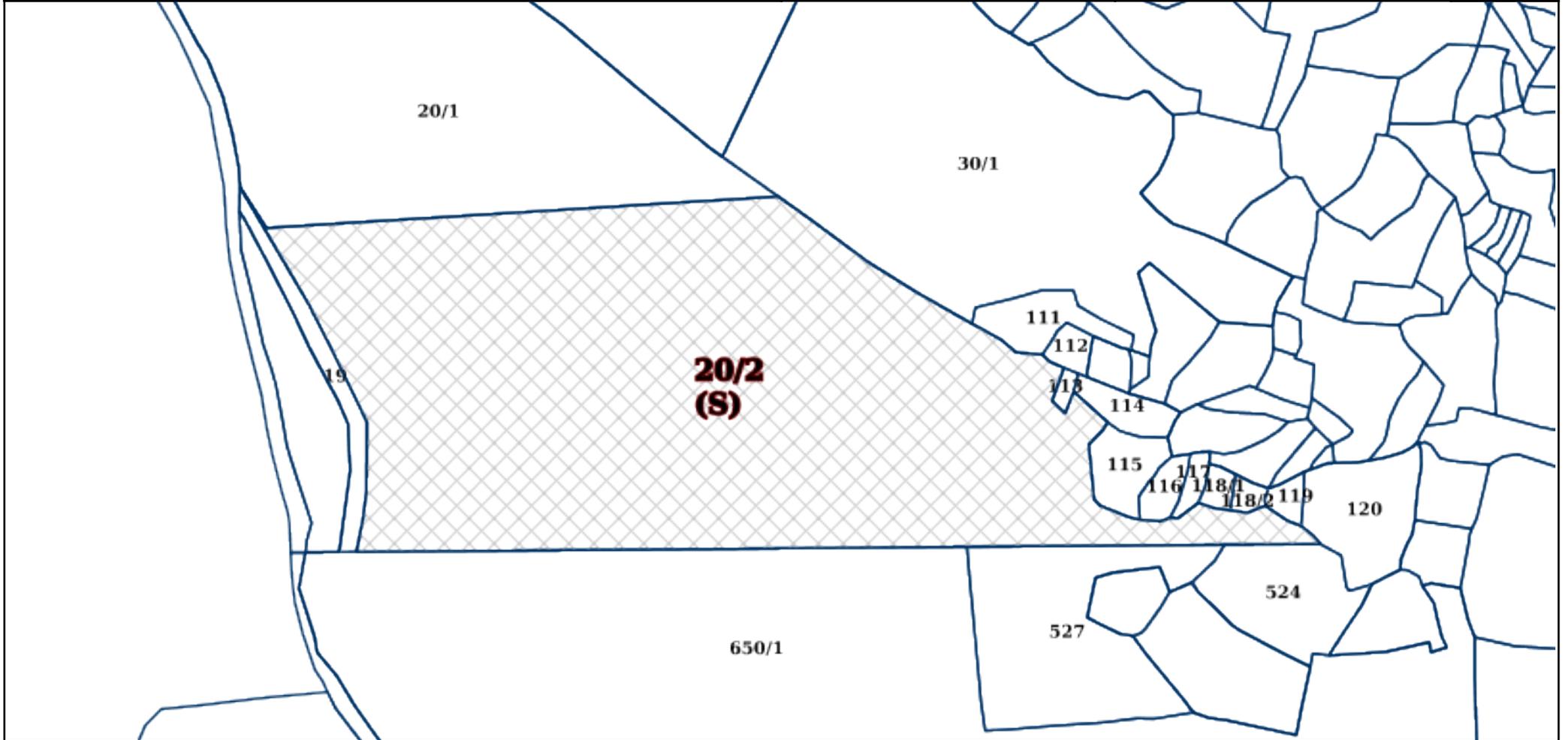


मध्यप्रदेश कम्प्यूटरीकृत भू-अभिलेख

सी.एल.आर नं. : 11155719805

वर्ष: 2024-25

दिनांक : 03-03-2025 13:12:30



ब्लॉक सं.:	ग्राम:सडेरी	हल्का:सडेरी	तहसील:सागर	जिला:सागर
सर्वेक्षण सं.: 20/2(S)	क्षेत्रफल:10.9500(हेक्ट.)	भू.रा.शा:0	मापांक 1:4000 (पृष्ठ आकार A4)	0 20 40 60 80 100 120 160m

भूमिदाता (शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था

Digitally signed by DS COMMISSIONER
LAND RECORDS MADHYA PRADESH 1
Date: 2025.03.03 13:15:05 IST
Reason: Digital Extract of Land Record -
Map Copy
CLR No. : 11155719805

(हस्ताक्षर)



मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्ररूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

CLR No. : 11155731038

ग्राम: सडेरी			पटवारी हत्का: सडेरी			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौलवी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुप्त तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना / वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
160905 1318	650/1 (S)		28.9000 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्य प्रदेश शासन शासकीय संस्था	1						न्यायालय तहसीलदार के प्रकरण क्र. 0128/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित
81TADF DBZZT 0H0											



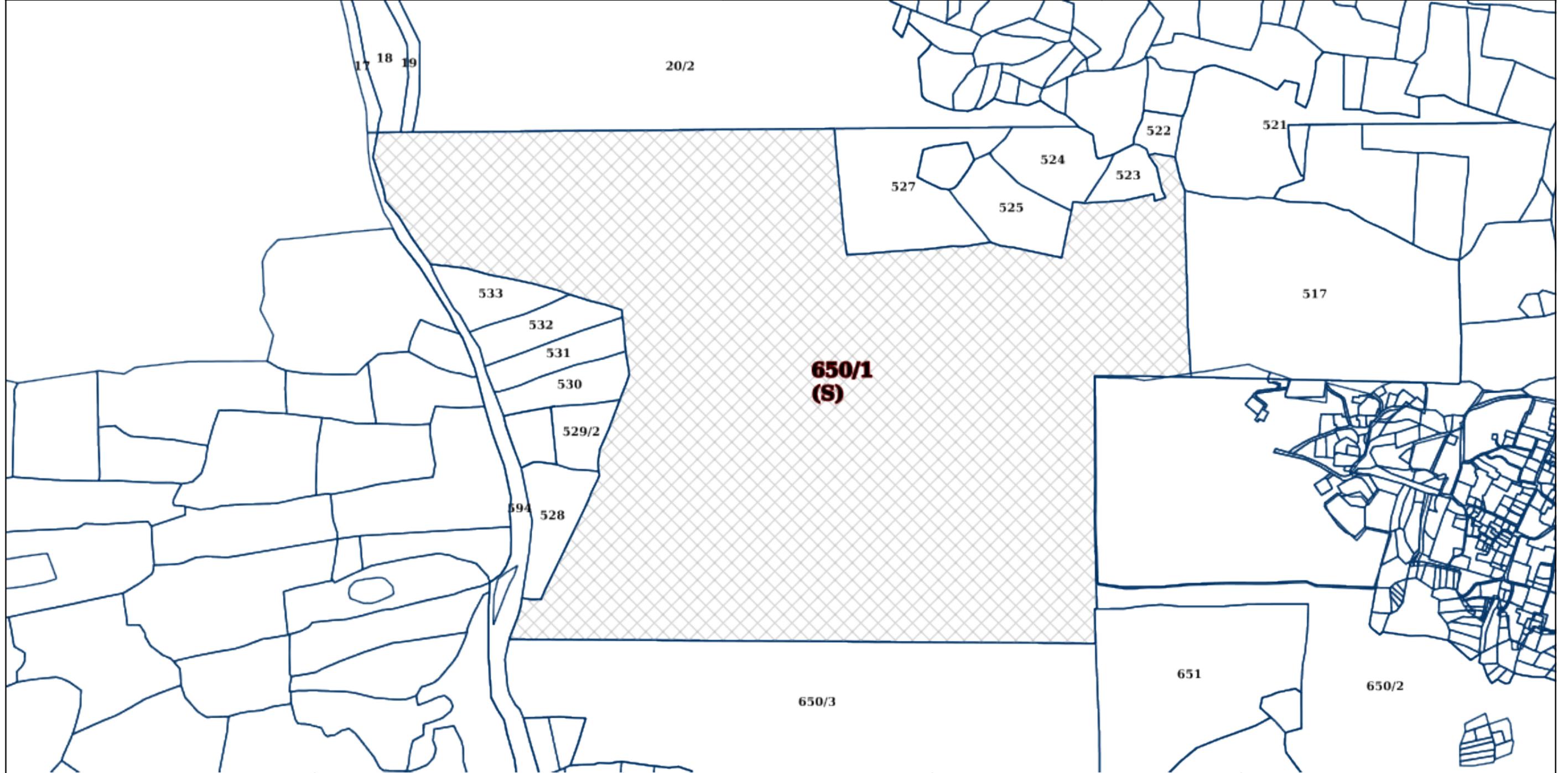
मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख
खसरा

प्रारूप एक (नियम 6 देखिए)

मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) नियम, 2020

CLR No. : 11155731033

ग्राम: सडेरी			पटवारी हत्का: सडेरी			तहसील: सागर			जिला: सागर		वर्ष: 2024-2025
भूमि के भाग की युनिक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्यांक / ब्लॉक संख्यांक)	भू-खण्ड संख्यांक (ब्लॉक की दशा में)	1. क्षेत्रफल (हेक्टेयर/वर्ग मीटर में) 2. भूमि उपयोग जिसके लिए निर्धारण किया गया है 3. भू-राजस्व/भू-भाटक (रु. में)	1. भूमिस्वामी का नाम, उसकी माता/पिता / पति का नाम तथा निवास का पता 2. शासकीय भूमि	प्रत्येक भूमि स्वामी का अंश	1. सरकारी पट्टेदार का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता 2. पट्टे की अवधि 3. पट्टे के अधीन क्षेत्र	मौलवी कृषक (यदि कोई हो) का नाम, उसकी माता/पिता/पति का नाम तथा निवास का पता	भूमि पर विलुंगम तथा प्रभार 1. बंधक 2. दृष्टिबंधक 3. भू-अर्जन प्रक्रियाधीन	फसल के ब्यौरे		1. भूमि के सिंचाई संबंधी प्रास्थिति 2. भूमि पर संरचना / वृक्ष 3. अन्य अभियुक्तियाँ 4. वर्ष के दौरान कॉलम संख्या (1) से (9) तक में प्रविष्टियों में सुधार के आदेश
									फसल 1. खरीफ 2. रबी 3. जायद 4. अन्य	फसल के अधीन क्षेत्रफल	
1	2	3	4	5	6	7	8	9	10	11	12
160905 3221	20/2 (S)		10.9500 हेक्टेयर रु.0.00	(शासकीय) वन विभाग मध्य प्रदेश शासन शासकीय संस्था	1						न्यायालय कलेक्टर के प्रकरण क्र. 0128/अ-20(3)/2024-25, आदेश दि. 24/12/2024 के अनुसार भू-अभिलेख अद्यतित
81TDTY DBZMP 8H0											



ब्लॉक सं.:	ग्राम: सडेरी	हल्का: सडेरी	तहसील: सागर	जिला: सागर
सर्वेक्षण सं.:	650/1(S)	क्षेत्रफल: 28.9000 (हेक्ट.)	भू.रा.शा: 0	

<p>भूमिदाता (शासकीय) वन विभाग मध्यप्रदेश शासन शासकीय संस्था</p>	<p>मापांक 1:4000</p> <p>0 50 100 150 200m</p>
	<p>Digitally signed by DS COMMISSIONER LAND RECORDS MADHYA PRADESH 1 Date: 2025.03.03 13:15:06 IST Reason: Digital Extract of Land Record - Map Copy CLR No. : 11155719845</p>

(हस्ताक्षर)



Annexure-5
कार्यालय वन मण्डल अधिकारी वन मण्डल सिंगरौली(म0प्र0)

माजन मोड़ जिला पंचायत के बगल में
ईमेल-dfot.sgl@mp.gov.in, फोन-07805-233336 फैक्स-233335

सूचना
का

अधिकार

क्र०/तक०/6247

सिंगरौली, दिनांक. ०४-१०-२०२५

प्रति,

प्राधिकृत अधिकारी,
बन्धा कोल ब्लॉक,
मेसर्स ई. एम. आई.एल. माईन्स
एण्ड मिनरल रिसोर्सेस लिमिटेड सिंगरौली

विषय:- वन मण्डल सिंगरौली के परिक्षेत्र बैढ़न/पूर्व सरई के वन कक्ष क्रमांक आर.एफ. 389, 390, 291, 292, 293, 391, 392, 296, 319, 320 एवं पी.एफ. 316, 317 के रकवा 781.94 हे० वनभूमि एवं विभिन्न खसरो क रकवा 3.55 हे० राजस्व वनभूमि (कुल रकवा 785.49 हे० वनभूमि) के स्थान पर पुनरीक्षित रकवा 807.917 हे० वनभूमि में बन्धा कोल ब्लॉक ओपन कारस्ट कोयला उत्खनन के व्यपवर्तन का - मेसर्स ई. एम. आई.एल. माईन्स एण्ड मिनरल रिसोर्सेस लिमिटेड का ऑनलाईन प्रस्ताव क्रमांक FP/MP/MIN/144129/2021

संदर्भ:- भारत सरकार, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, क्षेत्रीय कार्यालय, भोपाल का पत्र क्रमांक / 8-17/2023-FC/1/83491/2024 दिनांक 01.10.2024

-000-

भारत सरकार के उपरोक्त सन्दर्भित पत्र से प्रकरण में सैद्धांतिक स्वीकृति जारी की गयी है। जिसमें वन मण्डल सिंगरौली अंतर्गत वन परिक्षेत्र बैढ़न के कक्ष क्रमांक आर. 389, 390, वन परिक्षेत्र पूर्व सरई के कक्ष क्रमांक आर. 290, 291, 292, 293, 294, 296, 319, 320, 391, 320 एवं पी. 316, 317 में प्रभावित वनभूमि रकवा 804.367 हे० एवं राजस्व वन भूमि रकवा 3.55 हे० कुल रकवा 807.917 हे० भूमि मेसर्स ई. एम. आई.एल. माईन्स एण्ड मिनरल रिसोर्सेस लिमिटेड द्वारा आवंटित बन्धा कोल ब्लॉक ओपन कारस्ट कोयला उत्खनन हेतु वन संरक्षण अधिनियम 1980 के अन्तर्गत ऑनलाईन प्रस्तावित है।

2. प्रथम चरण की (सैद्धांतिक) सशर्त स्वीकृति के अनुसार नेट प्रजेन्ट वैल्यू की राशि का विवरण निम्नानुसार है :-

क्र०	मद का नाम	रकवा (हे० में)	कैम्पा मद में जमा की जाने योग्य राशि	कुल योग
1	नेट प्रजेन्ट वैल्यू	804.367	98,82,37,253 /-	98,82,37,253 /-
		3.55	34,00,119 /-	34,00,119 /-
			99,16,37,372 /-	99,16,37,372 /-

3. एन.पी.व्ही. रकवा 1397.54 हे० की राशि रु. 99,16,37,372 /-(रु. निन्यानवे करोड़ सोलह लाख सैतीस हजार तीन सौ बहत्तर मात्र) जिसे कैम्पा मद में भारत सरकार की वेबसाईट के माध्यम से जमा कराकर चालान एवं यू.टी.आर. की प्रति इस कार्यालय में प्रस्तुत करे।

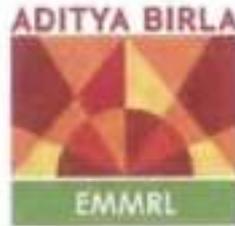
4. प्रथम चरण की सैद्धांतिक स्वीकृति में अधिरोपित समस्त शर्तों का पालन प्रतिवेदन एवं वचन पत्र चार प्रतियों में टेबुलर फार्म में तैयार कर इस कार्यालय में प्रस्तुत करें, ताकि पालन प्रतिवेदन वरिष्ठ कार्यालय की ओर प्रेषित किया जा सके।

वन मण्डल अधिकारी
वन मण्डल सिंगरौली
सिंगरौली दिनांक. ०४-१०-२०२५

पृ०क्र०/तक०/6248

प्रतिलिपि:- 1. अपर प्रधान मुख्य वन संरक्षक (भू-प्रबंध), मध्यप्रदेश, भोपाल की ओर सूचनार्थ सम्प्रेषित।
2. वन संरक्षक रीवा, वृत्त रीवा की ओर सूचनार्थ सम्प्रेषित।

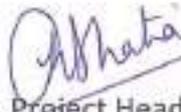
वन मण्डल अधिकारी
वन मण्डल सिंगरौली



Annexure-6

UNDERTAKING AT THE TIME OF PAYMENT OF THE NET PRESENT VALUE (NPV) AT THE PRESENT RATE, THE USER AGENCY SHALL FURNISH AN UNDERTAKING TO PAY THE ADDITIONAL AMOUNT OF NPV, IF SO DETERMINED, AS PER THE FINAL DECISION OF THE HON'BLE SUPREME COURT OF INDIA;

In Compliance to condition no-iii (b) of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh. I hereby undertake to pay the additional amount of NPV, if so determined, as per the final decision of the hon'ble supreme court of India.


Project Head

EMMRL Bandha Coal Block

Annexure-7

कार्यालय प्रधान मुख्य वन संरक्षक (वन्यप्राणी), मध्य प्रदेश

प्रगति भवन, भोपाल विकास प्राधिकरण, तृतीय तल, एम.पी.नगर, भोपाल

दूरभाष : 0755-2674318, 2674337, फ़ैक्स : 0755-2766315

E-mail : pccfwk@mp.gov.in

क्रमांक/व.प्रा./माचि./2022/MINE-140/5344
प्रति,

भोपाल, दिनांक 09.06.2023

✓ The Project Head,
M/s EMIL Mines and Minerals Resources Limited (EMM)
Industry House, 18th Floor,
10, Camac Street, Kolkata,
West Bangal-700017

विषय :- Wildlife Management Plan of Bandha Coal Mine located in Sarai Tehsil, Singrauli District, M.P. in favour of EMIL Mines and Minerals Resources Limited Kolkata.

- संदर्भ :-**
1. मुख्य वन संरक्षक, रीवा, वृत्त रीवा का पत्र क्रमांक/मा.चि./7482 दिनांक 08.09.2022
 2. वनमण्डलाधिकारी, सिंगरौली का पृष्ठांकन क्रमांक/मा.चि./2497 दिनांक 09.05.2023
 3. आपका ई-मेल दिनांक 28.10.2022

उपरोक्त विषयांतर्गत संदर्भित ई-मेल से आपके द्वारा ईमिल माइन्स एण्ड मिनरल्स रिसोर्सेस लिमिटेड कोलकता को वनमण्डल सिंगरौली के अंतर्गत 1850.94 हेक्टेयर भूमि में कोयला खदान की भारत सरकार द्वारा पत्र दिनांक 13.09.2021 से सशर्त स्वीकृति प्रदान की गई थी। आपके द्वारा कोयला उत्खनन हेतु प्रस्तावित उक्त 1850.94 हेक्टेयर में से बन्धा कोल ब्लॉक की 781.94 हेक्टेयर वनभूमि में प्रस्तावित खदान से 10 कि.मी. की परिधि में पाये जाने वाले फ्लोरा-फौना के संरक्षण के लिये वरधान इनवायरोनेट गुरगांव से तैयार करायी गई रुपये 800.00 लाख की वन्यप्राणी संरक्षण योजना संलग्न कर वनमण्डलाधिकारी, सिंगरौली को प्रेषित की गई थी, जो मुख्य वन संरक्षक, रीवा के संदर्भित पत्र से इस कार्यालय के अनुमोदन हेतु अनुशंसा सहित प्रेषित की गई थी। उक्त प्रेषित जानकारी के अनुसार प्रस्तावित वनक्षेत्र 781.94 हेक्टेयर में से कुछ वनभूमि वनमण्डल, सिंगरौली की प्रचलित कार्य-आयोजना के अनुसार हाथी कॉरीडोर में सम्मिलित होना दर्शाया गया है।

प्रकरण मे वनमण्डलाधिकारी, सामान्य वनमण्डल सिंगरौली द्वारा संदर्भित पत्र दिनांक 09.05.2023 से उक्त वन्यप्राणी संरक्षण योजना में संशोधन करते हुए 10 वर्षों के लिए रुपये 920.70 लाख राशि का प्रावधान कर संशोधित वन्यप्राणी संरक्षण योजना प्रेषित की गई है, जिसके मुख्य घटक एवं प्रावधानित राशि निम्नानुसार है:-

Wildlife Conservation Plan for Bandha Coal Mine in Singrauli forest Division, Madhya Pradesh of M/s S EMMRL

Sl. No	Management interventions	Year wise financial projection (in Lac.)										Total
		I	II	III	IV	V	VI	VII	VIII	IX	X	
WILDLIFE HABITAT IMPROVEMENT WORKS												
1	Assisted Natural regeneration with gap plantation (200plants/ha) over 300 ha. in nearby forest area @ Rs.25,000/-ha	24.00	18.00	06.00	06.00	06.00	06.00	06.00	06.00	06.00	06.00	90.00
2	Soil and Moisture Conservation activities: Development of water bodies like stop dam, water tanks, earthen dams, etc. depending on the site suitability (catchment area, run-off, etc.)	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	50.00
3	To Prevent Soil Erosion: Eradication of weed hindering the growth of palatable grasses	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	50.00
4	Planting of species suitable to wildlife	00.00	05.00	00.00	05.00	00.00	05.00	00.00	05.00	00.00	05.00	25.00

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Sl. No	Management interventions	Year wise financial projection (in Lac.)										Total
		I	II	III	IV	V	VI	VII	VIII	IX	X	
FIRE PROTECTION WORK												
5	Engaging fire watchers, cleaning and burning of fire lines, hiring vehicles, etc.	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	50.00
SPECIAL PROVISION FOR HUMAN ELEPHANT CONFLICT												
6	Creation of various Physical barriers like elephant proof trench (EPT), removable barriers, spike walls, solar fencing, biological fencing etc.	20.00	05.00	05.00	05.00	05.00	20.00	05.00	05.00	05.00	05.00	80.00
7	Various acoustic and farm based deterrence like flash light, spot light, flickering light etc. Mobile app based technology like sajan app, Elephant depredation squad, Gajraj vahan and other suitable vehicles and equipments. Awareness programme, training, constitution of Hath-Mitra dal in affected villages, hiring of vehicles, labour and other expert services, Miscellaneous expenditure related to human elephant conflict, construction of tower for suitable plan for monitoring purpose.	45.00	35.00	25.00	20.00	15.00	20.00	13.00	12.00	10.00	05.00	200.00
8	Free Distribution of Seedling	03.00	02.00	02.00	02.00	02.00	03.00	02.00	02.00	02.00	02.00	22.00
ORGANIZATIONAL STRENGTHENING												
9	Equipment for Studies on Elephant Habitat Utilization	15.00	00.00	00.00	00.00	00.00	10.00	00.00	00.00	00.00	00.00	25.00
10	Training Related to Monitoring by Forest Staff and members of VSS	02.00	02.00	02.00	02.00	02.00	02.00	02.00	02.00	02.00	02.00	20.00
11	Construction of Nature Interpretation centre cum Auditorium	10.00	00.00	00.00	00.00	00.00	10.00	00.00	00.00	00.00	00.00	20.00
STRENGTHENING FOREST MANAGEMENT COMMITTEE FOR BETTER COOPERATION AND PROTECTION												
12	Developmental activities in JFM areas for socio-economic development	20.00	00.00	00.00	00.00	00.00	20.00	00.00	00.00	00.00	00.00	40.00
13	various eco-tourism promotion activities	00.00	00.00	20.00	00.00	00.00	00.00	00.00	00.00	20.00	00.00	40.00
14	Construction of grainery, godown for safety from elephants.	00.00	15.00	00.00	00.00	00.00	00.00	10.00	00.00	00.00	00.00	25.00
15	Distribution of seedlings of fruit bearing and other species in village areas.	05.00	00.00	05.00	00.00	05.00	00.00	05.00	00.00	05.00	00.00	25.00
MISCELLANEOUS EXPENDITURES												
16	Safety precautions, signage, boards, displays	15.00	00.00	00.00	00.00	00.00	10.00	00.00	00.00	00.00	00.00	25.00
17	Study tours for gaining experiences and knowledge about efforts being done, within or outside country in human elephant mitigation.	15.00	00.00	00.00	00.00	00.00	10.00	00.00	00.00	00.00	00.00	25.00
18	Corpus Fund	05.00	00.00	05.00	00.00	05.00	00.00	05.00	00.00	05.00	00.00	25.00
	Total	194.0	97.00	85.00	55.00	55.00	131.0	63.00	47.00	70.00	40.00	837.00
	10% Cost escalation and Unforeseen	19.40	9.70	8.50	5.50	5.50	13.10	6.30	4.70	7.00	4.00	83.70
	Grand Total	213.4	106.7	93.5	60.5	60.5	144.1	69.3	51.7	77	44	920.70

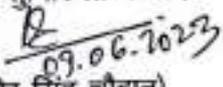
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वनमण्डलाधिकारी, सामान्य वनमण्डल सिंगरौली एवं मुख्य वन संरक्षक, रीवा वृत्त के द्वारा अनुशंसित वन्यप्राणी योजना में पलोरा-फीना के संरक्षण एवं संवर्धन के लिये वन्यप्राणी प्रबंधन हेतु दर्शाये गये कार्यों के अनुसार रुपये 920.70 लाख की 10 वर्षों की संशोधित वन्यप्राणी संरक्षण योजना का निम्न अतिरिक्त शर्त के अधीन अनुमोदन किया जाता है:-

1. माइन क्षेत्र का कुछ भाग हाथी कॉरीडोर के अंतर्गत होने के कारण मानव-हाथी द्वंद्व को कम करने के लिए आपकी संस्था के प्रतिनिधियों से हुई चर्चा के अनुसार हाथियों के आने की तत्काल सूचना का प्रसार करने हेतु सजग एप, उच्च तकनीकी सूचना प्रणाली वाले AI Based Early Warning System को संभावित/प्रभावित स्थलों पर आवेदक संस्था द्वारा लगाया जावेगा, जिसका व्यय आवेदक संस्था द्वारा किया जावेगा।
2. वन्यप्राणी संरक्षण योजना में प्रावधानित कार्यों की मुख्य वन संरक्षक, रीवा एवं वनमण्डलाधिकारी, सिंगरौली के संयुक्त रूप से प्रतिवर्ष अनुश्रवण किया जावेगा एवं तत्संबंध में प्रतिवेदन अधोहस्ताक्षरकर्ता को प्रेषित किया जाना होगा।

उक्तानुसार अनुमोदित संशोधित वन्यप्राणी संरक्षण योजना की एक प्रति प्रधान मुख्य वन संरक्षक (भू-प्रबंध) मध्यप्रदेश, एक प्रति मुख्य वन संरक्षक, रीवा वृत्त एवं एक प्रति वनमण्डलाधिकारी, सामान्य वनमण्डल सिंगरौली को उपलब्ध कराये।

प्रकरण में भारत सरकार/राज्य शासन की अंतिम स्वीकृति उपरांत, माइन प्रारंभ होने के पूर्व समय-सीमा में संशोधित वन्यप्राणी संरक्षण योजना में वन्यप्राणी प्रबंधन हेतु प्रावधानित राशि रुपये 920.70 लाख एक मुश्त मध्यप्रदेश टाइगर फाउंडेशन सोसायटी के भारतीय स्टेट बैंक, मुख्य शाखा टी.टी. नगर, भोपाल के बचत खाता क्रमांक 10571048460 आई.एफ.एस.सी. कोड SBIN0001308 में जमा करायी जाकर वनमण्डलाधिकारी, सामान्य वनमण्डल सिंगरौली एवं इस कार्यालय को अवगत कराना सुनिश्चित करेंगे।
संलग्न :- उपरोक्तानुसार।


(जसबीर सिंह चौहान)
मुख्य वन्यप्राणी अभिरक्षक एवं
प्रधान मुख्य वन संरक्षक (व.प्रा.), म.प्र.
भोपाल, दिनांक 09.06.2023

क्रमांक/व.प्रा./मा.चि./MINE-140/5345
प्रतिलिपि :-

1. संचालक, भारत सरकार, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय (इन्वैक्ट असेसमेंट डिविजन) इंदिरा पर्यावरण भवन, अलीगंज जोर बाग रोड नई दिल्ली-110003 की ओर उनके के पत्र क्रमांक J-11015/54/2021-IA-II(M) दिनांक 13.09.2021 से जारी स्वीकृति के क्रम में सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
2. प्रधान मुख्य वन संरक्षक (भू-प्रबंध) सतपुड़ा भवन, भोपाल की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित। उपरोक्त प्रकरण में वन संरक्षण अधिनियम, 1980 के अंतर्गत आपके स्तर से जारी अंतिम अनुमति में अनुमोदित संशोधित वन्यप्राणी संरक्षण योजना में प्रावधानित राशि रुपये 920.70 लाख आवेदक संस्था द्वारा वनमण्डलाधिकारी, सामान्य वनमण्डल सिंगरौली को एक मुश्त उपलब्ध कराने की शर्त अधिरोपित करने का कष्ट करें।
3. मुख्य वन संरक्षक, रीवा वृत्त रीवा की ओर अनुमोदित संशोधित वन्यप्राणी संरक्षण योजना की एक प्रति सहित सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
4. वनमण्डलाधिकारी, सामान्य वनमण्डल सिंगरौली की ओर उक्त अनुमोदित संशोधित वन्यप्राणी संरक्षण योजना की एक प्रति सहित सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित है। प्रकरण में भारत सरकार/राज्य शासन की अंतिम स्वीकृति उपरांत माइन प्रारंभ होने के पूर्व वन्यप्राणी संरक्षण योजना में प्रावधानित राशि एक मुश्त आवेदक संस्था से प्राप्त कर प्रावधानित कार्यों का समय सीमा में क्रियान्वयन किया जाना सुनिश्चित करें।


मुख्य वन्यप्राणी अभिरक्षक एवं
प्रधान मुख्य वन संरक्षक (व.प्रा.), म.प्र.

BANDHA COAL MINE

Capacity: 5.0 MTPA (Opencast)

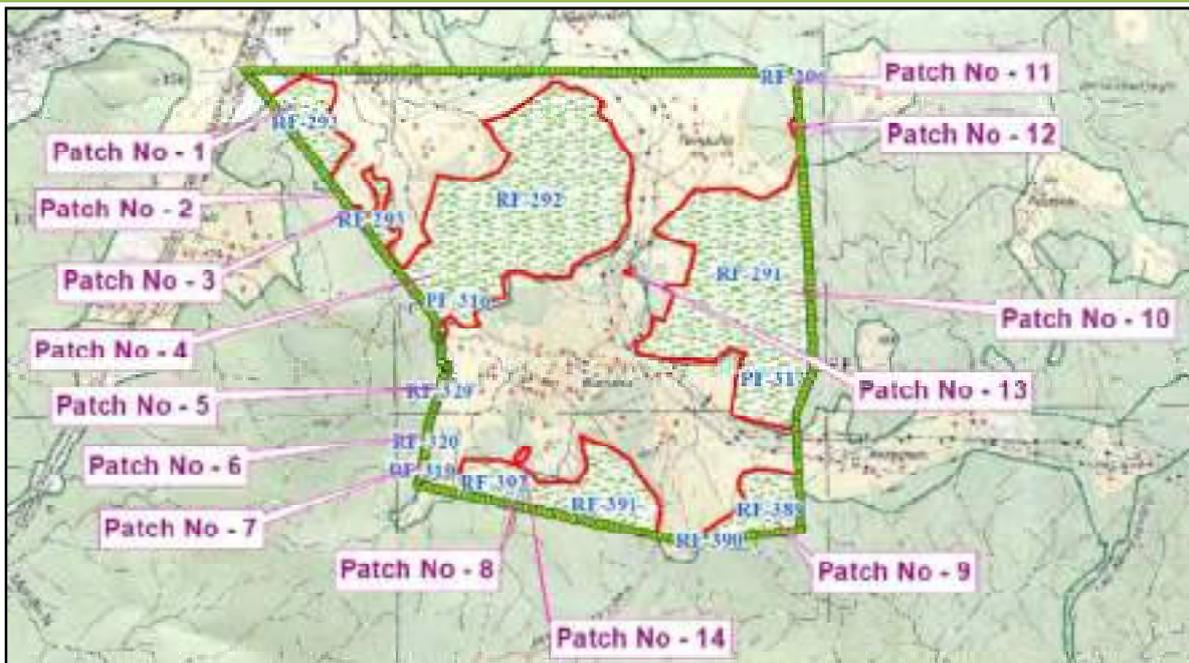
Area: 1850.94 Ha

in Singrauli Coalfields (Main Basin)

Singrauli Forest Division,

Singrauli district, M.P.

SITE SPECIFIC WILDLIFE CONSERVATION PLAN



November, 2021

Project Proponent

M/s EMIL Mines and Minerals Resources Ltd. (EMMRL)

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BANDHA COAL MINE

Capacity: 5.0 MTPA (Opencast)

Area: 1850.94 Ha

in Singrauli Coalfields (Main Basin)

Singrauli Forest Division,

Singrauli district, M.P.

SITE SPECIFIC WILDLIFE CONSERVATION PLAN



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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

- I Bandha Coal Block is located in Singrauli Coalfield (Main Basin), village(s) Bandha, Tenduha, Pidarwah, Deori and Pachaur, Tehsil: Sarai, Singrauli district of Madhya Pradesh. The **Bandha** Coal block spread over a total 18.5094 sq.km area between latitudes 24° 04' 17" N-24° 06' 51" N and longitudes 82° 21' 39" E - 82° 24' 57" E, is covered by Survey of India Toposheet no. 63 L/08.
- II The total area involved in this project is 1850.94 ha, out of which 785.49 ha is forest land. The block is located at about 60 km west of Singrauli township via Bargawan. The nearest big township is Waidhan located at a distance of 50 km from the block which is also the District Headquarter. Block is traversed by number of fair weathered and forest roads.
- III The important villages in and around the block are Bandha, Pidarwah, Tenduha, Deori and Pachaur villages located within the block.
- IV In the core zone and buffer zone (10 km radius of the project area) there is only two Reserve Forest detailed below:-

Sr. No.	RF/PF	Direction	Distance (KM)
1.	Mohanban RF	All Directions	Within Mine lease also
2.	Pidarwah P.F.	East Direction	Within Mine lease also

- V In the buffer zone (10 km radius of the project area) there are following water bodies are present as detailed below:-

Bandha Nala -Within ML area	Sukhra Nala-8.1 km, SSE
Rampa River – 5.8 km, S	Mahan Nadi – 2.5 km, W
Kanchanmuda Nala-adjacent to ML area	Kanchan Nala- 6.7 km, NE
Laua Nala – 7.2 km, ESE	

Bandha Coal Block is located in Singrauli Coalfield (Main Basin), Village Tenduha, Pidarwah, Deori, Bandha & Pachaur, Tehsil: Sarai, Singrauli district of Madhya Pradesh. The Bandha Coal



Mine Area is connected through both Ranchi – Renukut – Singrauli – Bargawan – Sidhi – Rewa national highway and Waidhen-Bargawan-Sidhi state highway. From both national highway and state highway, network of forest roads and few pakka jeepable roads are available connecting the surrounding villages.

Singrauli Railway station is 27 km from Waidhan. The distances of important places from Waidhan are - Varanasi (nearest Airport) 250 km, Renukoot, an industrial township and important railway station on Chopan-Garhwa Road Section of Eastern Railway is at a distance of 70 km.

- VI Block is traversed by number of fair weathered and forest roads. The important villages in and around the block are Tenduha, Pidarwah, Deori, Bandha & Pachaur villages located within the block and adjacent to the mine lease area.
- VII About 43% part of the Bandha block area is covered by forest land. The remaining 57% (approx.) part of the block area is used either as agriculture land or village land (as in habitat). The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the block varies between 405.00 m in the north western part to 475.00 m above M.S.L. towards southern part of the block.
- VIII As **per Socio-economic** status of this coal block, there are 5 villages (Tenduha, Pidarwah, Deori, Bandha & Pachaur) within the core zone and total 29 villages in the study area. Summary of demographic pattern of the study area is given below:

Demographic profile of the study area

Sr.No.	Parameter	Study Area
		RURAL
1.	No. of Villages	29
2.	Household	8783
3.	Household Ratio	4.8
4.	Total Population	42397
5.	Male Population %	21752(51.30%)
6.	Female Population %	20645(48.69%)
7.	Population (0-6 Years)%	8074(19.04%)



8.	Sex Ratio	949
9.	Child Sex Ratio	910
10.	Scheduled Caste %	6119(14.43%)
11.	Scheduled Tribes %	14754(34.99%)
12.	Literates %	19797(46.69%)
13.	Main Workers %	13477(31.78%)
I.	Cultivators	6654(49.37%)
II.	Agriculture Labourers	5040(37.39%)
III.	Household Workers	89(0.66%)
IV.	Other Workers	1694(12.56%)
14.	Marginal Workers %	6400(15.09%)
15.	Non-Workers %	22520(53.10)

Source: * PCA Census 2011, Madhya Pradesh State

- IX According to the ‘**India State of Forest Report -2019**’ (latest) the total forest area of the Singrauli district is 2,180.13 Km² which is 38.42% of the geographical area. The forest area included, 394.41 Km² (39441 Ha) of very dense forest, 1002.52 Km² (100252 Ha) of medium dense forest and 783.20 Km² (78320 Ha) of open forest.

The present Working Plan of Singrauli forest division is valid from 2009-10 to 2018-19. According to revised Forest Types (Champion and Seth 1968) the study area has been classified as Dry Peninsular Sal Forest (5B/C1c), Northern Dry Mixed Deciduous Forest (5B/C2), and Dry Bamboo Brakes (5/E9). In this Working Circle Sal occurs either pure or in mixture with (*Shorea robusta*), Saja (*Terminalia tomentosa*), Dhaora (*Anogesissus latifolia*), Bija (*Pterocarpus marsupium*), Sena (*Lagerstroemia parviflora*), Salia (*Boswellia serrata*), Tinsa (*Ougeinia oojeinensis*), Sagaun (*Tectona grandis*), Kari (*Saccopetalum tomentosum*) etc.

- X The **flora** existing in the core and buffer zone are Sal (*Shorea robusta*), Teak (*Tectona grandis*), Haldu (*Adina cordifolia*), Dhaora (*Anogeissus latifolia*), Kardhai (*Anogeissus pendula*), Saliha (*Boswellis serrata*), Char (*Buchnanian lanzan*), Dhobin (*Dalbergia paniculata*), Tendu (*Dyospyros melanoxylon*), Amla (*Emblica officinalis*), Lendia (*Lagerstoremia parviflora*), Gunja (*Lannea coromandelica*), Mahua (*Madhuca indica*), Bija (*Pterocarpus marsupium*), Kusum (*Schleichera oleosa*), Bhelwa (*Semecarpus anacardium*), Jamun (*Syzygium cumini*), Harra (*Terminalia chebula*), Bahara (*Terminalia belerica*), Saja (*Terminalia tomentosa*) etc.
- Grasses** noticed are Aristida (*Aristida funiculata*), Chloris (*Chloris barbata*), Digitaria



Executive Summary for Bandha Coal Mine in Singrauli Forest Division, Madhya Pradesh of M/s EMMRL
(*Digitaria radicata*), *Dimeria*, *Dactyloctenium* (*Dactyloctenium aegyptium*), *Setaria* (*Setaria glauca*), *Cenchrus* (*Cenchrus biflorus*), *Cyperus* etc. **Weeds** noticed are *Ageratum conyzoides*, *Alysicarous* and *Euphorbia* spp.

Sal (*Shorea robusta*) is another important timber species in Madhya Pradesh. It is a large evergreen tree belonging to the family Dipterocarpaceae. Sal forests of Madhya Pradesh are ecologically very important as they mark the termination of the great Sal zone of the Central Indian peninsula. Sal forests are located in the eastern part of the state while teak forests are localized in the western part. In between, there is a transition belt of mixed miscellaneous forests.

Fauna noticed are –

mammals- Hare (*Lepus nigricollis*), Palm Squirrel (*Funambulus pennati*), Spotted deer (*Axix axix*), Bat (*Pteropus giganteus*), Mongoose (*Herpestes edwardi*), Red faced Monkey (*Macaca mulata*), Sloth Bear (*Melursus ursinus*), Barking Deer (*Muntiacus muntjak*), Wolf (*Canis lupus pallipes*), Black faced Langur (*Semnopithecus entellus*), Hyena (*Hyaena hyaena*), Fox (*Vulpes bengalensis*), Porcupine (*Histrix indica*), Jackal (*Canis aureus*), Wild Boar (*Sus scrofa cristatus*).

Birds- Brown fish Owl (*Bubo zeylonensis*), Blue Rock Pigeon (*Columba livia*), Asian Koel (*Eudynamis scolopacea*), Rufous Wood Pecker (*Micropternus brachyurus*), Pied Kingfisher (*Ceryle rudis*), Painted Partridge (*Galloperdix lunulata*), Bengal Vulture (*Galloperdix lunulata*), Indian Great horned Owl (*Bubo bengalensis*), Common Parakeet (*Psittacula eupatria*), Grey Jungle Fowl (*Gallus sonneratti*), Jungle Myna (*Acridotheres tristis*), Indian Cuckoo (*Cuculus micropterus*), Indian Roller (*Coracias behghalensis*), Spotted Dove (*Streptopelia chinensis*), Bush Quail (*Perdica asiatica*), Chestnut bellied Sand Grouse (*Pterocies exustus*), Peacock (*Pavo cristatus*), Cattle Egret (*Bubulus ibis*), Green Imperial Pigeon (*Ducula aenea*).

Reptiles- Indian Rock Python (*Python molurus*), Indian Chameleon (*Chameleon zeylanicus*), Garden Lizard (*Calotes versicolor*), Rat Snake (*Elephe radiata*), Indian Cobra (*Naja naja*)

Fishes- *Catla catla* (Katla), *Cirrhinus mrigala* (Mrigal), *Tor tor* (Mahaseer), *Mastooembelus armatus* (Bam), *Labeo rohita* (Rohu), *Labeo bata*.

- XI The anticipated degradation due to this project are Air pollution, Noise pollution, Accidental death of wildlife (Rarely), Litter generation, Habitat degradation, forest fire, and Fragmentation of habitat etc. In view of these, mitigation measures like Improvement and Protection to Habitat, fire protection, awareness promotion, cattle immunization and incentive to villagers are



Executive Summary for Bandha Coal Mine in Singrauli Forest Division, Madhya Pradesh of M/s EMMRL
provided in the core area of this project. Where as in the buffer area mitigation measures like Wildlife Habitat Improvement, Fire protection Measures, anti-depredation squad, Compassionate grant and creation of water hole have been proposed. The total cost of this plan is **Rs.9.207 Crores** for a period of **10 years**.

- XII A monitoring committee will be formed with the Chairmanship of Conservator of forest Waidhan circle where DFO, Waidhan Division will be the Member Secretary and other members will be Range Officer, Forester and Forest Guard. Apart from this the village head of surrounding villages will participate in the half yearly meeting where progress and impact of the prescriptions of this plan will be discussed in detail. Any addition or modification to the prescriptions approved by Chief Wildlife Warden will be undertaken.

M/s Vardan EnviroNet wishes to place on record its deep appreciation for the trust reposed in Vardan EnviroNet by EMIL Mines and Minerals Resources Limited (EMMRL) and for the active interest and help extended by concerned EMMRL officials. Cooperation extended to M/s Vardan EnviroNet by the officials of State Forest department is also acknowledged.



CHAPTER-1

INTRODUCTION AND METHODOLOGY

1.0 INTRODUCTION AND METHODOLOGY

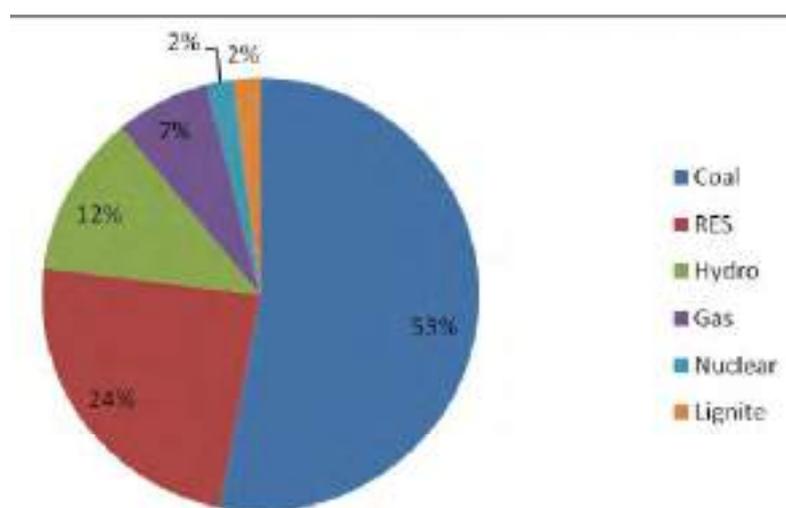
1.1 Introduction:

The mineral wealth of a nation is an important feature in its economic progress, and mining in India has a vital role in the development. Madhya Pradesh has a glorious heritage in the field of natural resources, mines and minerals. The state is geologically so endowed that it has become a veritable repository of minerals.

Electricity is the key factor for the development of a nation. All sectors viz. industrial, agriculture and social require electric power for their growth and availability of electricity in the nation. Coal based power plants are probably the most economically viable and time-tested solution towards the solution of this problem. These thermal power plants obviously need a constant supply of coal. In fact, about 67% of the power plants in India are coal based.

Coal Mining

Coal plays a crucial role in the production of electricity in India. As per the CEA data with regard to installed capacity in India (as of Oct'20), coal based installed capacity is about 53%, followed by Renewable Energy Sources (RES) at 24%, while hydro power (12%), gas (7%), nuclear (2%) and lignite (2%) round up the rest. The graph representing the fuel wise contribution to the country's installed power generation capacity is shown in figure 1.1 below.



Source: <https://powermin.nic.in/en/content/power-sector-glance-all-india>

Figure 1.1: Fuel-wise contribution in India installed power generation capacity.



Mining is one of the major contributors towards the growth and sustenance of human civilization. In this context, coal mining has played a special role since ancient times, as coal is a major source of energy for the development of a society. However, coal mining has its own downside i.e., coal mines lead to degradation of land and especially for an opencast mine, where large tracts of land are used. During production of coal from mines and subsequent transportation of coal, significant pollution is generated. The pollution includes land degradation, air pollution, and water pollution, noise pollution, besides having impact on socio-economic status of the area and flora & fauna.

Coal deposits in Madhya Pradesh

Coal has been one of the key sources of primary energy for the world, contributing to roughly half of the total primary energy consumption. However, the significance of coal varies across the world with Asia leading the consumption, both in absolute terms and as a proportion of total primary energy consumption. The total coal production in India in 2019-20 surpassed 730 MT and is likely to increase to about 1000 MT by 2022-23. Power generation remains the key consumer of coal in India.

Important deposits of coal occur in Shahdol, Umaria, Singrauli, Betul, Chindwara and Narsingpur districts. Coal is the primary source of energy supply in India. About 55% of the current commercial energy use is met by coal. Rising demand for energy and coal as the primary energy source make it a significant resource in the country. Opening of Bandha coal mine will have the following benefits:

- Increase supply of coal for India's power programme.
- Reduces power shortages hindering growth, foreign investment and productivity.
- Generate additional employment, both direct and indirect, which will lead to economic growth of the industrial sector as well as country.
- The quality of life of local populace in villages shall improve due to company's community development programmes.

1.2 Lease Area:

The Singrauli Coalfield which forms the northern most part of Son- Mahanadi Master basin occupies a prominent position on power map of India due to its vast Quarriable coal resources. Singrauli Coalfield covering an area of about 2200 sq km is located mainly in



Singrauli district of Madhya Pradesh with a small portion falling in Sonbhadra District of Uttar Pradesh. Singrauli coalfield is structurally composed of two techno-sedimentary domains viz. the Moher sub basin in north east and the Main Basin in the west. The large part of the coalfield known as the Main Basin covering nearly 1900 sq km has been partly explored while the Moher sub basin having an area of around 300 sq km has been extensively explored in detail. These two basins of Singrauli Coalfield are separated by a concealed basement high. The **Bandha** Coal block spread over a total 18.5094 sq.km area between latitudes 24° 04' 17" N-24° 06' 51" N and longitudes 82° 21' 39" E - 82° 24' 57" E, is located about 60 km west of Singrauli township via Bargawan. Bargawan is located at a distance of about 25 km from the block. The block is connected with Rajmelan by metalled road and the distance is about 25 km. the nearest railway station for Bandha Block is Deoragram (between Bargawan & Sarai stations), on Chopan-Singrauli-Katni-Jabalpur section of East Central Railway at a distance of 6 km from the block. The nearest big township is Waidhan located at a distance of 50 km from the block which is also the District Headquarter. This area is a part of Survey of India Topo sheet No.63 L/08 (on R.F.1:50000).

Singrauli Railway station is 27 km from Waidhan. The distances of important places from Waidhan are - Varanasi (nearest Airport) 250 km, Renukoot, an industrial township and important railway station on Chopan-Garhwa Road Section of Eastern Railway is at a distance of 70 km.

There are twenty eight coal blocks identified by Ministry of Coal, Government of India, New Delhi. They are Amelia (North), Amelia, Chatarsal, Mahan, Mara Mahan, Suliyari, Patpahari, Dhirauli, **Bandha**, Bandha North, Gondbahera Ujheni, Gondbahera Ujheni East, Pachaur, Makri Barka East, Makri Barka, Makri Barka West Phase-I, Gurbara South, Gurbara Central, Gurbara North, Purail, Saratola, Borka, Bari Mahuli, Hattadudhmania, Sarai East, Sarai West, Dongri Tal-I and Dongri Tal-II.

Bandha Coal Block is located in Singrauli Coalfield (Main Basin), Village Bandha, Pidarwah, Tenduha, Deori and Pachaur, Tehsil: Sarai, Singrauli district of Madhya Pradesh. The Bandha Coal Block in Singrauli Coalfield, in the State of Madhya Pradesh has been allocated to M/s EMIL Mines and Mineral Resources Limited (EMMRL) vide Letter No. NA-104/5/2020-NA dated 03.03.2021 by MoC, GoI. The project area consists of 785.49 Ha. (781.94 Ha Protected and Reserved Forest Area + 3.55 Ha Govt. Revenue Forest Area



and Application for Forest Clearance has been submitted vide Proposal No. FP/MP/MIN/144129/2021.

1.3 Location:

Total area of the Bandha Coal mine of EMMRL is 1850.94 ha between latitudes $24^{\circ} 04' 17''$ N- $24^{\circ} 06' 51''$ N and longitudes $82^{\circ} 21' 39''$ E - $82^{\circ} 24' 57''$ E, is located in village- Tenduha, Pidarwah, Deori, Bandha & Pachaur, Tehsil-Sarai, District-Singrauli, Madhya Pradesh, which is located about 60 km west of Singrauli township via Bargawan.

The Bandha Coal Mine Area is connected through both Ranchi – Renukoot – Singrauli – Bargawan – Sidhi – Rewa national highway and Waidhen-Bargawan-Sidhi state highway. From both national highway and state highway, network of forest roads and few pakka jeepable roads are available connecting the surrounding villages.

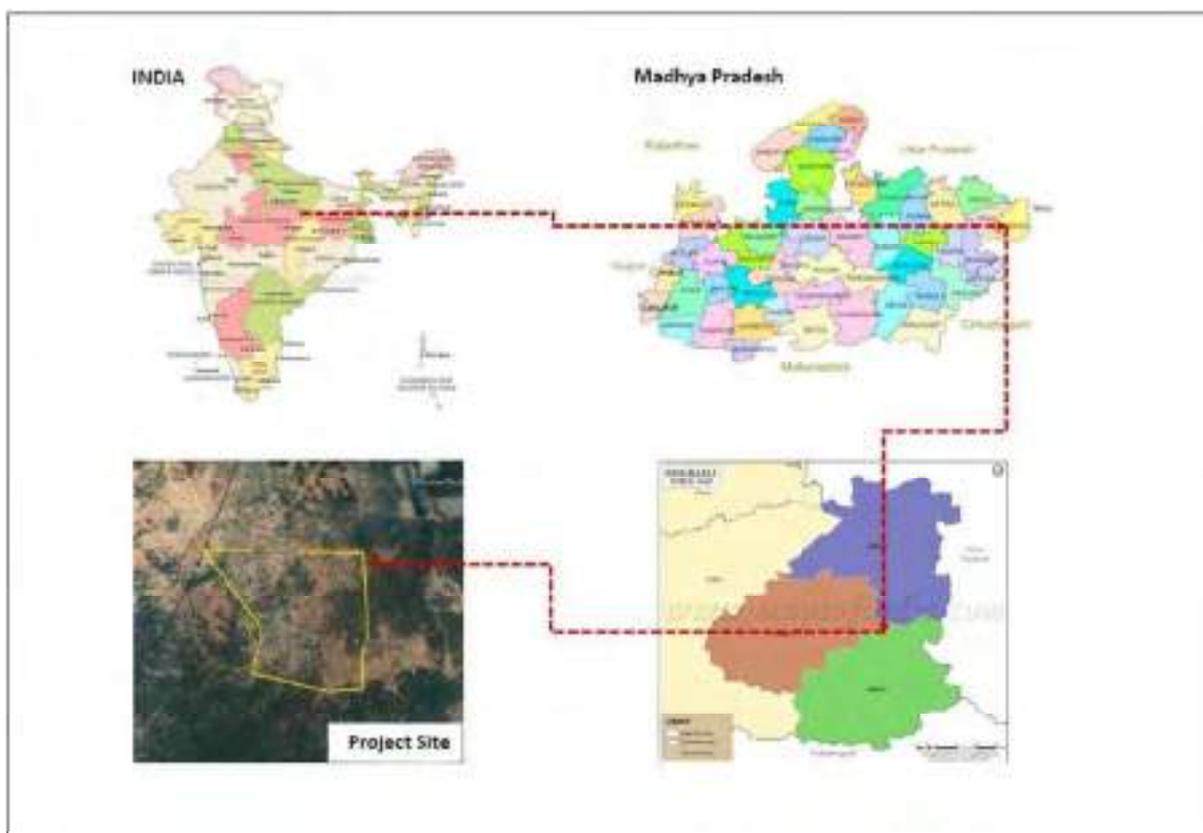


Figure-1.2: Location Map of Bandha Coal Block

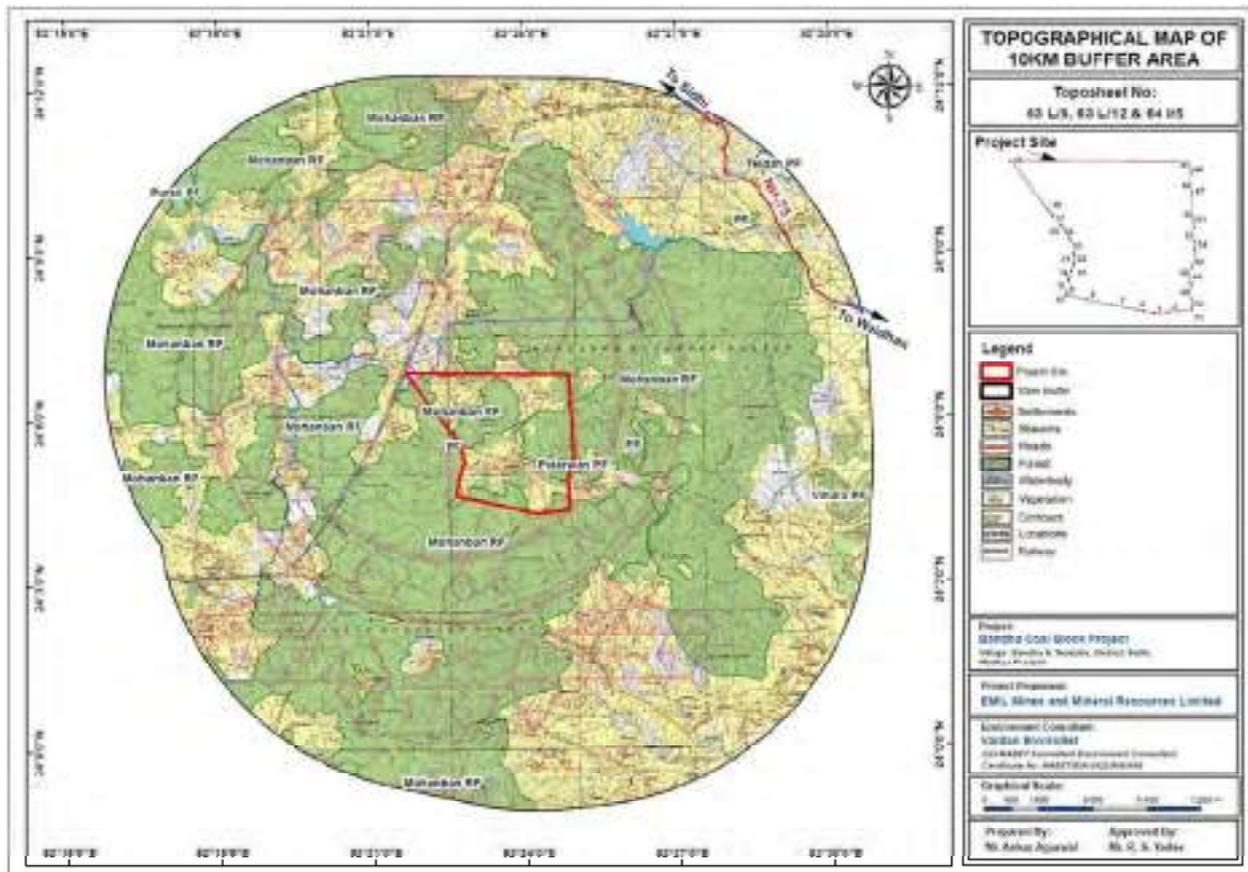


Figure-1.3: 10 km Study area around Bandha Coal Block



1.4 Forest Jurisdiction:

The administrative jurisdiction of proposed Bandha coal mine comes under Singrauli Forest Division. Out of the lease hold area of 1850.94 ha only 785.49 ha is forest land.

Table-1.1: Lease Hold Area

Type of Land	Area (ha)
Forest Land	
Protected/Reserved Forest	781.94
Government Revenue Forest	3.55
Total Forest Area	785.49
Non-Forest Land	1065.45
Total	1850.94

1.5 Land Use Pattern:

The project area comprises of a total of 1850.94 ha, out of which, 785.49 ha land is forest land, 1065.49 ha Non-Forest land. The existing land utilization in the project area is given in **Table 1.2** and Mine development plan represented in **Figure 1.4**.

Table-1.2: Land Use Pattern of Bandha Coal Block

Bandha Coal Mine Summary of the Land inside the Coal Mine						
District	Tehsil	Village Name	Govt. Land (Ha)	Private Land (Ha)	Revenue Forest (Ha)	Total Land (Ha)
Singrauli	Sarai	Tenduha	31.64	108.23	0.00	139.87
		Pidarwah	43.42	119.03	2.01	164.46
		Deori	13.33	35.67	0.00	49.00
		Bandha	199.06	511.31	1.54	711.91
		Pachaur	1.92	1.85	0.00	3.76
Total revenue Area (A)			289.37	776.09	3.55	1069.00
Protected Forest						95.90
Reserved Forest						686.04
Protected and Reserved Forest Compartment Area (B)						781.94
Total Area (A+B)						1850.94





Figure-1.4 Mine Development Plan of the Bandha Coal Mine

The purpose-wise break-up of the total leasehold area along with the Forest Land required for diversion is furnished in the **Table: 1.3**:



Table-1.3: Land Use Plan during and Post Mining

Type	Land use (Proposed)	Land Use (End of Life)	Land Use (Post Closure)						
			Agricultural land	Plantation	Water Body	Public/ Company Use	Forest Land (Returned)	Undisturbed	Total
Excavation Area	1315								
Backfilled Area		1200	295	905					1200.00
Excavated Void		115				115			115.00
Without plantation									
Top Soil Dump									
External Dump	350	350		350					350.00
Safety Zone	15	15						15	15.00
Haul Road between quarries									
Road diversion									
Diversion/ below River/Nala/canal									
Settling pond	15	15			15				15.00
Road & Infrastructure area	85	85				85			85.00
Rationalization area	25.94	25.94		25.94					25.94
Garland drains	10	10				10			10.00
Embankment									
Green Belt	15	15		15					15.00
Water Reservoir near pit									
UG entry	10	10				10			10.00
Undisturbed/ Mining right for UG	10	10						10	10.00
Total	1850.94	1850.94	295.00	1295.94	15.00	220.00		25.00	1850.94



1.6 Demographic Pattern:

The basic unit for rural areas is the revenue village which has definite surveyed boundaries. The revenue village may comprise of one or more hamlet, but the entire village is treated as one unit for presentation of data.

The study area was defined as an area within 10 km radius around the proposed mining project site of covers 29 villages of **Singrauli** and **Deosar tehsil** of **Singrauli District** of **Madhya Pradesh State**.

Table-1.4: Summarized Demographic profile of the study area.

Sr.No.	Parameter	Study Area
		RURAL
1.	No. of Villages	29
2.	Household	8783
3.	Household Ratio	4.8
4.	Total Population	42397
5.	Male Population %	21752(51.30%)
6.	Female Population %	20645(48.69%)
7.	Population (0-6 Years) %	8074(19.04%)
8.	Sex Ratio	949
9.	Child Sex Ratio	910
10.	Scheduled Caste %	6119(14.43%)
11.	Scheduled Tribes %	14754(34.99%)
12.	Literates %	19797(46.69%)
13.	Main Workers %	13477(31.78%)
I.	Cultivators	6654(49.37%)
II.	Agriculture Labourers	5040(37.39%)
III.	Household Workers	89(0.66%)
IV.	Other Workers	1694(12.56%)
14.	Marginal Workers %	6400(15.09%)
15.	Non-Workers %	22520(53.10)



Table-1.5: Details of Village-Wise Demographic Pattern

Sr. No.	Villages	House holds	Total Population	Male Population	Female Population	Population (0-6 Years)	Scheduled Caste	Scheduled Tribes	Literates
Madhya Pradesh State									
Singrauli District									
Singrauli Tehsil									
1.	Lamidah	177	860	450	410	180	369	487	413
2.	Deori	182	861	407	454	177	20	528	395
3.	Bandha	499	2377	1200	1177	462	312	984	1102
4.	Tenduha	239	1405	693	712	325	14	975	531
5.	Karmatola	3	10	5	5	0	0	0	0
6.	Pidarwah	258	1397	690	707	277	80	884	570
7.	Amiliya	657	3171	1592	1579	605	431	821	1397
8.	Suhira	879	4201	2177	2024	756	1163	969	1913
9.	Khokhari	287	1457	787	670	226	261	229	758
10.	Bodaratola	37	194	93	101	30	0	97	88
11.	GajaraBahara	580	2766	1415	1351	550	351	1523	1190
12.	Khanua Khas	173	849	433	416	166	129	465	353
13.	Jamgadi	343	1607	816	791	319	93	1001	716
14.	Bhalyatola	214	1098	583	515	210	0	382	553
15.	Budher (Bugher)	40	165	82	83	32	0	93	71
16.	Suggo	10	39	21	18	3	0	39	16
17.	Chitarwai Khurd	146	646	352	294	129	111	75	312
18.	Chitarwai Kalan	647	2805	1435	1370	546	155	727	1292
19.	Gadariya	387	1723	884	839	313	194	124	815
20.	Gadsa	187	871	458	413	173	430	16	401
Total		5945	28502	14573	13929	5479	4113	10419	12886
Deosar Tehsil									
21.	Daga	745	3329	1685	1644	641	983	137	1809
22.	Majhauili	277	1519	855	664	230	41	245	945
23.	Kunda	46	290	152	138	52	0	14	146



24.	Manihari	344	1930	985	945	345	65	842	885
25.	Makari	294	1381	702	679	289	173	876	579
26.	Pachaur	355	1823	951	872	364	80	724	841
27.	Talwa	175	886	445	441	205	71	564	406
28.	Ujjaini	575	2543	1311	1232	439	593	836	1212
29.	Bodaratola	37	194	93	101	30	0	97	88
Total		2848	13895	7179	6716	2595	2006	4335	6911
Grand Total		8793	42397	21752	20645	8074	6119	14754	19797

Table-1.6: Occupational Structure of the Study Area (RURAL)

Sr.No.	Villages	Total Main Workers	Main Workers				Marginal Workers	Non-Workers
			Cultivators	Agricultural Laborers	Household Laborers	Other Workers		
Madhya Pradesh State								
Singrauli District								
Singrauli Tehsil								
1.	Lamidah	331	151	155	0	25	52	477
2.	Deori	395	154	226	0	15	30	436
3.	Bandha	954	93	824	5	32	383	1040
4.	Tenduha	518	66	446	0	6	148	739
5.	Karmatola	3	2	1	0	0	0	7
6.	Pidarwah	461	58	390	0	13	9	927
7.	Amiliya	715	356	236	0	123	784	1672
8.	Suhira	1240	1008	136	15	81	916	2045
9.	Khokhari	518	325	20	2	171	281	658
10.	Bodaratola	64	64	0	0	0	0	130
11.	GajaraBahara	526	288	81	3	154	695	1545
12.	Khanua Khas	452	238	201	0	13	1	396
13.	Jamgadi	796	230	527	0	39	6	805
14.	Bhalyatola	166	153	8	1	4	407	525
15.	Budher(Bugher)	72	64	7	0	1	0	93
16.	Suggo	20	14	5	0	1	1	18



Wildlife Conservation Plan for Bandha Coal Mine in Singrauli Forest Division, Madhya Pradesh of M/s EMMRL

17.	Chitarwai Khurd	103	86	3	0	14	218	325
18.	Chitarwai Kalan	843	694	97	0	52	572	1390
19.	Gadariya	325	44	237	3	41	483	915
20.	Gadsa	143	90	0	2	51	84	644
Total		8645	4178	3600	31	836	5070	14787
Deosar Tehsil								
21.	Daga	1076	380	259	21	416	344	1909
22.	Majhauri	398	181	8	0	209	131	990
23.	Kunda	73	68	4	0	1	10	207
24.	Manihari	660	524	127	0	9	180	1090
25.	Makari	706	642	37	25	2	2	673
26.	Pachaur	463	116	246	0	101	336	1024
27.	Talwa	280	268	3	1	8	138	468
28.	Ujjaini	1112	233	756	11	112	189	1242
29.	Bodaratola	64	64	0	0	0	0	130
Total		4832	2476	1440	58	858	1330	7733
Grand Total		13477	6654	5040	89	1694	6400	22520



1.7 Cropping Pattern Adopted by Villagers:

Two seasonal crops mainly Kharif (summer crop) and Rabi (winter crop) are well developed in this region. The crops grown are Paddy, Jawar, Maize and Kodo. Mustard and Til are also grown along with the pulses like Arhar, Mung etc. The main Kharif crop is also paddy which is cultivated with a short rotation and this type of crop is grown only where irrigation facilities are available during winter. In addition, Alsi, Mustard, etc. are also grown during Rabi. A very significant matter is the use of fertilizers and pesticides in this region are very much limited as most of the agricultural practitioners are traditional and support use of green manure.

1.8 Extent of Biotic Pressure of the villagers on the study area:

At present agriculture is not imposing any biotic pressure on the natural ecosystem particularly of this region. Population growth is a common phenomenon all over which is not restricted to only the study area. The population growth has its impact on the natural ecosystem, common to everywhere. The energy consumption by the villagers for cooking food items entirely depends on adjoining forest areas i.e., collection of fuel wood.

1.9 Number of Families depending upon the NTFP Collection:

A majority of families in the impact area belong to SC and ST, who are involved in collection of NTFP. The main NTFP (non-timber forest produce) product is *mouha* (*Madhuca indica*) flower. Apart from mouha they also collect Amla (*Emblica officinalis*), Baheda (*Terminalia bellirica*), Harra (*Terminalia chebula*) and Aam (*Mangifera indica*) fruits. Honey and *Jhuna* (*raal*) (resin from Sal tree) collection is infrequent in the study area. Tendu leaf collection is also practised here. However, during our survey we did not find any family entirely dependent on NTFP collection. The left-over family members of the main work force (old age people, women and children) are mostly engaged in NTFP collection. All family members join for collection of NTFP during the lean period when no other engagement for earning their lively hood is available. Apart from NTFP, firewood (locally called *Jhati*) collection from forest is a traditional and common practice in the study area. Villagers cut the tree for small timber and firewood for their own consumption. They collect their fencing materials and materials required for agricultural tools from the surrounding forests. On average per standard family (Father+ mother+ one child) consumes 10 kg of firewood per day.



1.10 Method of NTFP Collection:

Handpicking from the ground is the main system of collection of mohua. For collecting from the ground villagers clean the forest floor by igniting fire, which destroys the ground vegetation, as well as restricting the regeneration of tree species. Repeated use of this method adversely impacts herbivore population. Due to the impact of this cleaning process of underground forest growth, the ground becomes completely barren at places to check the rainwater flow, resulting into soil erosion.

1.11 Topography:

About 43% part of the Bandha block area is covered by forest land. The remaining 57% (approx.) part of the block area is used either as agriculture land or village land (as in habitat). The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the block varies between 405.00 m in the northwestern part to 475.00 m above M.S.L. towards southern part of the block.

1.12 Natural Drainage Lines:

The Singrauli Coalfield is located in the drainage area of Son & Rihand Rivers. The drainages of the block are controlled by Bandha Nala and Kachanmuda Nala.

Bandha Nala flows from south to north inside the block and then east to west near Ujheni village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village north-west of the block.

Kachanmuda nala flows south to north inside the block and meets Kachan Dam in the north-east of the block. Bandha Nala and Kachanmuda Nala drain the entire area surrounding the exploration block. The drainage pattern exhibited in the area is mainly dendritic to sub-dendritic.

1.13 Climate:

The climate of the area is characterized by hot dry summer as well distributed rainfall in the monsoon season. The summer season begins in March and extends up to May with maximum temperature rising up to 48°C during the peak period. The monsoon period extends from June to September with an average rainfall of 1132.7 mm. The winter season commences in early November up to February with the mean daily temperature of 8.1°C.



1.14 Details of the Linear Infrastructures:

The Bandha Coal Mine Area is connected through both Ranchi – Renukoot – Singrauli – Bargawan – Sidhi – Rewa national highway and Waidhen-Bargawan-Sidhi state highway. From both national highway and state highway, network of forest roads and few pakka jeepable roads are available connecting the surrounding villages.

The **Bandha** Coal block spread over a total 18.5094 sq.km area, is located about 60 km west of Singrauli township via Bargawan. Bargawan is located at a distance of about 25 km from the block. The block is connected with Rajmelan by metalled road and the distance is about 25 km. the nearest railway station for Bandha Block is Deoragram (between Bargawan & Sarai stations), on Chopan-Singrauli-Katni-Jabalpur section of East Central Railway at a distance of 6 km from the block. The nearest big township is Waidhan located at a distance of 50 km from the block which is also the District Headquarter.

1.15 Biodiversity of Study Area:

Generally, biological communities are good indicators of climatic and edaphic factors. Studies on biological aspects of ecosystems are important in Biodiversity Assessment for safety of natural flora and fauna. Information on the impact of environmental stress on the community structure serves as an inexpensive and efficient early warning system to check the damage to a particular ecosystem. The biological environment includes mainly terrestrial and aquatic ecosystems.

A change in the composition of biotic communities is reflected by a change in the distribution pattern of natural species of flora and fauna existing in the ecosystem. The sensitivity of animal and plant species to the changes occurring in their existing ecosystem can, therefore, be used for monitoring of Impact Assessment studies of any project.

Biological communities are the indicator environmental condition and resource of its distribution and survival. Biotic component comprises of both plants (Flora) and animal (Fauna) communities, which interact not only within and between them but also with the Abiotic components, viz. physical and chemical components of the environment. The changes in biotic community are studied in the pattern of distribution, abundance and diversity.

Any project has some impact on the flora and fauna in the project area. Plant and animal communities are indicators of the environment. They respond not only to one



environmental factor, but also to an interacting group of factors. These communities influence and react sensitively to change in the balance of environmental stresses.

Therefore, a detailed knowledge of the diversity of the area definitely helps in managing the area properly following suitable practices. The study was conducted in the project area to assess all possible consequences on the biological environment.

Floral and faunal surveys conducted for assessing biological diversity and its status over a period of time that form an integral part of Impact Assessment Techniques. The present study highlights the various issues pertaining to floristic diversity and faunal wealth including Ethno-botany and silvicultural issues in the submergence area and also the area beyond the limit of the submergence. Accordingly, for the Environmental Impact Assessment (EIA) studies, the total area has been sub-divided into the following areas.

- ▶ Core Zone: i.e., Project Site of **Bandha Coal Block (1850.94 Ha)**
- ▶ 10 km radius buffer zone
- ▶ Natural vegetation in the study area (Core & Buffer Zone).
- ▶ Forest area (Protected/Reserved)
- ▶ Rivers and Ponds in vicinity

1.15.1. Objectives of Biological Study:

The biological study of the area has been conducted in order to understand the ecological status of the existing flora and fauna to generate baseline information and evaluate the probable impacts on the biological environment. The main objectives of biological study were:

Terrestrial Ecology:

The study was undertaken with a view:

- ❖ To assess nature and distribution of the vegetation in the area.
- ❖ To evaluate the dominant species of plant and animal. To list the endangered species of flora and fauna.
- ❖ To mark the wetlands and other ecologically sensitive areas such as national parks/sanctuaries.
- ❖ To assess the effect of construction and operation of the project on existing ecology.



- ❖ To Assess the spawning and feeding habitats of aquatic species with respect to time and location.

Aquatic Ecology:

The study was carried out in the project site aiming at:

- ❖ Inventorization of different aquatic species (plankton (phyto & zoo), benthos, fishes).
- ❖ To identify the feeding and breeding grounds of economically important fishes.
- ❖ To assess the existing status of endangered species.

Table: 1.7: Mode of data collection and parameters considered during the Survey

Sr. No.	Aspect	Data	Mode of Data collection	Parameters monitored	Remarks
1.	Terrestrial Biodiversity	Primary data collection	By field survey	Floral and Faunal diversity	<p>For Floral Diversity: Random survey, sapling survey/forest inventory, walking transects, collection and identification with the help of relevant literature.</p> <p>For Faunal Diversity: direct and indirect sampling, walking transects, point sampling and nest sampling etc.</p>
2.		Secondary data collection	From authentic sources like Forests department and available published literatures from ZSI, BSI etc.	Floral and Faunal diversity and study of vegetation, forest type, importance etc.	Data collected from the working plan of the region, forest types from the authentic literature of Champion & Seth.
3.	Aquatic Biodiversity	Primary data	By field survey	Floral and Faunal diversity	<p>For Plankton Study- Lackey's drops method and light microscope</p> <p>For other aquatic- Random survey, opportunistic Observations</p>



4.		Secondary data collection	From authentic sources like Forests department.	Floral and Faunal diversity and study of vegetation, forest type, importance	Desktop literature review to identify the representative spectrum of threatened species,
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				etc.	population and ecological communities.
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1.15.2. Methodology for Biodiversity Assessment:

I. Floral Diversity:

The present study on the floral assessment for the project activity is based on field survey of the area. Inventory Methodology was adapted to the baseline data of floral diversity in a corridor of 10km radius from the project site of the proposed project using the relevant toposheets of scale 1:50000.

A forest inventory is “**an attempt to describe the quantity and quality of forest trees and many of the characteristics of the land area upon which the trees are grown.**” The objective of this floral inventory of the study area, is to provide complete checklist of floristic structure along the entire stretch of the proposed project for formulating effective management and conservation measures. The tree species, shrubs, herbs and climbers observed in the study area (Core zone, Buffer Zone and Protected Areas NP/WLS/PF/RF) are represented in Table 1.8.

II. Faunal Diversity:

A linear transect of 1.0 km each was chosen for sampling at each site. Each transect was trekked for 1.5 hr for the sampling of faunal diversity through the following methods for different categories. For the sampling of butterflies, the standard ‘Pollard Walk’ method was employed, and all the species recorded daily. Voucher specimens of the species that could not be identified in the field were collected using a butterfly net besides photographing them. For bird sampling, ‘Point Sampling’ along the fixed transect (Foot trails) was carried out. All the species of birds were observed through binoculars and identified with the help of field guide book and photographs.

For the sampling of mammals, direct count on open width (20m) transect was used. In addition, information on recent sightings/records of mammals by the villagers/locals was also collected. For carnivores, indirect sampling was carried out and the mammals were identified by foot marks, faeces and other marks/sign created by them. In the case of reptiles mainly lizards were sampled by direct count on open width transects.



The study of fauna takes a substantial amount of time to understand the specific faunal characteristic of area. The assessment of fauna has been done by extensive field survey of the area. During survey, the presence of wildlife was also inhabitants depending on animal sightings and the frequency of their visits in the project area which was later confirmed by the forest department, Wildlife Department etc.

III. Aquatic Diversity:

a) Zooplankton:

For zooplankton analysis, 20L of subsurface water was strained through 53 μ Nytex plankton net and the concentrate was transferred to labeled plankton bottle after rinsing the net with distilled water. The plankton were immediately preserved in 4% neutral formaldehyde solution for subsequent examination and quantification.

Zooplankton samples were observed in a sedimentation chamber under an inverted plankton microscope. Planktons were identified with the help of standard keys and references.

b) Phytoplankton:

Similarly, for phytoplankton analysis, water sample were taken directly from the sites in 100 ml sampling bottles and preserved with Lugol's solution immediately. Then the samples were centrifuged in the laboratory followed by removal of desired amount of supernatant from the centrifuge tube to make the required concentration.

c) Fishes:

Fisheries data has been collected through consultation with local fishermen and throwing nets.

1.15.3. Forest Types of Study Area:

Madhya Pradesh is a forest rich State and is ranked first among the States in terms of the RFA. The State has a sizeable tribal and rural population which is dependent on the forests for their livelihood and basic needs. As per the Champion & Seth Classification of Forest Types (1968), the forests in Madhya Pradesh belong to five Forest Type Groups, which are further divided into 21 Forest Types. Madhya Pradesh is a pioneering State in the implementation of the Joint Forest Management (JFM) movement in the country. The State has a strong JFM network through 15,228 JFMC/VSS/EDCs covering an area of 66,874 sq km.



Recorded Forest Area (RFA) in the State is 94,689 sq km of which 61,886 sq km are Reserved Forests, 31,098 sq km is Protected Forests and 1,705 sq km is Unclassed Forests. In Madhya Pradesh, during the period 1st January 2015 to 5th February 2019, a total of 12,785.98 hectares of forest land was diverted for non-forestry purposes under the Forest Conservation Act, 1980 (MoEF & CC, 2019).

Ten National Parks and 25 Wildlife Sanctuaries constitute the Protected Area network of the State covering 3.51% of its geographical area. There are 6 Tiger Reserves in the State covering an area of 6117.26 sq km. Eco-sensitive zones have been declared for 19 protected areas. The State with a population of 526 Tigers, is recognized as Tiger State of India, as per the 'All India Tiger Estimation 2018' released recently.

Based on the interpretation of IRS Resourcesat-2 LISS III satellite data of the period Oct 2017 to January 2018, the Forest Cover in the State is 77,482.49 sq km which is 25.14 % of the State's geographical area. In terms of forest canopy density classes, the State has 6,676.02 sq km under Very Dense Forest (VDF), 34,341.40 sq km under Moderately Dense Forest (MDF) and 36,465.07 sq km under Open Forest (OF). Forest Cover in the State has increased by 68.49 sq km as compared to the previous assessment reported in ISFR 2017 (ISFR, 2019). According to revised Forest Types (Champion & Seth, 1968) the forest type of the lease area along with the 10 km Radius buffer area, confirms to following forest types: -

- i. Dry Peninsular Sal Forest (5B/C1c)
 - ii. Northern Dry Mixed Deciduous Forest (5B/C2)
 - iii. Dry Deciduous Scrub (5/DS1)
 - iv. Dry Bamboo Brakes (5/E9)
- i. Dry Peninsular Sal Forest (5B/C1c):** Sal occurs either pure or in mixture with *Terminalia tomentosa*, *Terminalia bellerica*, *Pterocarpus marsupium*, *Anogeissus latifolia*, *Lagerstroemia parviflora*, *Madhuca latifolia*, *Diospyros melanoxylon*, *Buchanania lanzan*, *Ougeinia dalbergiodes* etc. Under storey consists of *Combretum decandrum*, *Flacourtia cataphracta*, *Randia dumetorum*, *Zizyphus mauritiana*, *Gardenia gummifera*, *Holarrhena* Spp., *Lantana Camara*, *Eupatorium odoratum* etc.



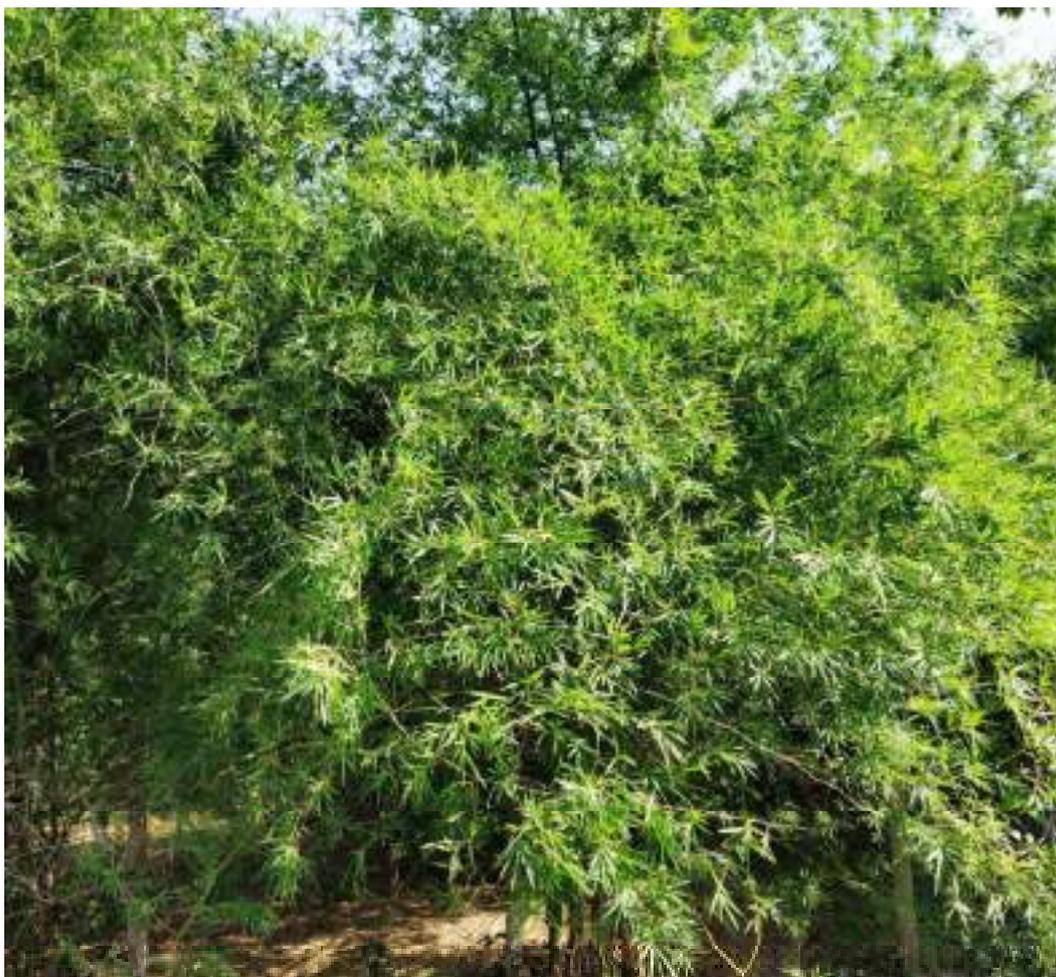
- ii. **Northern Dry Mixed Deciduous Forest (5B/C2):** The upper canopy in this forest type is usually light, open and irregular, the trees having relatively short bole and poor form and a height rarely over 10 m. The canopy is formed entirely of deciduous trees. The main species found are *Cassia fistula*, *Diospyros tomentosa*, *Acacia catechu*, *Anogeissus latifolia*, *Bombax ceiba*, *Albizia lebeck*, *Albizia procera*, *Melia azadirachta*, *Acacia nilotica*, *Acacia modesta*, *Bauhinia variegata*, *Bauhinia purpurea*, *Bauhinia racemosa*, *Cassaria elliptica*, *Syzygium cumini*, *Mangifera indica*, *Ehrilia laevis*, *Phoenix sylvestris*, *Morus alba*, *Morus Australia*, *Terminalia tomentosa*, *Boswellia serrata*, *Aegle marmelos*, *Erythrina suberosa*, *Ficus glomerata*, *Grewia elastica*, *Mallotus philippensis* and *Shorea robusta* (Rarely).

The under growth is mainly *Zizyphus mauritiana*, *Carissa apaca*, *Holarrhena antidysenterica*, *Diospyros cordifolia*, *Capparis deciduas*, *Adhatoda vasica*, *Murraya koenigii*, *Agave Americana*, *Capparis sepiaria*, *Cordia dichotoma*, *Cassia tora*, *Zizyphus nummularia*, *Zizyphus oenopolia*, *Woodfordia fruticosa*, *Vitex negundo*, *Dodonea viscosa*.

Climbers found are *Bauhinia vahlii*, *Militia extensa*, *Mucuna Spp.*, *Tinospora cordifolia*, *Pueraria tuberosa*, *Vallaris solanacea*. Grasses are *Panicum antidotata*, *Aristida depressa*, *Bothrichloa intermedia*, *Cynodon dactylon*, *Bothrichloa pertusa*, *Cymbopogon marini*, *Dendrophloe falcate* and *Eriophorim comosum*.

- iii. **Dry Deciduous Scrub (5/DS1):** This forest type represents a degradation stage of the Dry Deciduous Forest and has been brought into existence by adverse biotic factors like excessive grazing, lopping, felling and fires. In spite of sufficient rains, moisture retention is poor and the type has now become a stable edaphic climax. The crop is open with less tree cover. The main tree species found are *Diospyros tomentosa*, *Acacia leucopholea*, *Butea monosperma*, *Premna barbata*, *Cassia fistula*, *Anogeissus latifolia* and *Lanea grandis*. The undergrowth is mainly *Carissa apaca*, *Woodfordia fruticosa*, *Nyctanthes arbor-tristis* and *Flacourtia indica*.
- iv. **Dry Bamboo Breaks (5/E9):** In this forest type, only one species *Dendrocalamus strictus* occurs and forms low but often dense bamboo breaks. This forest type occurs mainly on dry hillsides of the study area.





Bamboosetum in Buffer Zone

1.15.4. Biodiversity within the Core Zone:

1.15.4.1. Flora:

The core zone, i.e., Bandha Coal Block, in Singrauli Coalfield, in the State of Madhya Pradesh has been allocated to M/s EMIL Mines and Minerals Resources Limited (EMMRL) vide Letter No. NA-104/5/2020-NA dated 03.03.2021 by MoC, GoI.

The lease is located in Singrauli Coalfields (Main Basin), Village: Bandha, Tenduha, Pidarwah, Deori, and Pachaur, Tehsil: Sarai, Singrauli district of Madhya Pradesh. The details of floral diversity of Bandha coal block (core zone) is given in **Table-1.8**.



Table-1.8: Floral Diversity within Core Zone

S.N.	Scientific Name	Local Name	Family	Habit
TREES				
1.	<i>Acacia catechu</i>	Khair	Fabaceae	Tree
2.	<i>Acacia leucophloea</i>	Reunjha	Fabaceae	Tree
3.	<i>Acacia nilotica</i>	Babul	Fabaceae	Tree
4.	<i>Aegle marmelos</i>	Bel	Rutaceae	Tree
5.	<i>Ailanthus excels</i>	Maharukh	Simaroubaceae	Tree
6.	<i>Albizia lebbbeck</i>	Kala Siris	Fabaceae	Tree
7.	<i>Artocarpus heterophyllus</i>	Kathal	Moraceae	Tree
8.	<i>Azadirachta indica</i>	Neem	Rutaceae	Tree
9.	<i>Bauhinia purpurea</i>	Kachnar	Caesalpiniaceae	Tree
10.	<i>Bauhinia racemosa</i>	Kathmahula	Caesalpiniaceae	Tree
11.	<i>Bombax ceiba</i>	Semal	Malvaceae	Tree
12.	<i>Boswellia serrata</i>	Salai	Burseraceae	Tree
13.	<i>Buchanania lanzan</i>	Chironji	Anacardiaceae	Tree
14.	<i>Butea monosperma</i>	Palash	Fabaceae	Tree
15.	<i>Careya arborea</i>	kumbhi	Lecythidaceae	Tree
16.	<i>Cassia fistula</i>	Amaltas	Caesalpiniaceae	Tree
17.	<i>Cassine glauca</i>	Jamrashi	Celastraceae	Tree
18.	<i>Cordia dichotoma</i>	Lasora	Boraginaceae	Tree
19.	<i>Corymbia citriodora</i>	Safeda	Myrtaceae	Tree
20.	<i>Dalbergia latifolia</i>	Shisham	Fabaceae	Tree
21.	<i>Dillenia indica</i>	Bhavya	Dilleniaceae	Tree
22.	<i>Diospyros melanoxylon</i>	Tendu	Ebenaceae	Tree
23.	<i>Diospyros montana</i>	Patvan	Ebenaceae	Tree
24.	<i>Dodonaea angustifolia</i>	Khareta	Sapindaceae	Tree
25.	<i>Erythrina suberosa</i>	Haduwa	Fabaceae	Tree
26.	<i>Ficus benghalensis</i>	Bargad	Moraceae	Tree
27.	<i>Ficus hispida</i>	Kathmur	Maoraceae	Tree
28.	<i>Ficus racemosa</i>	Gular	Moraceae	Tree
29.	<i>Ficus religiosa</i>	Papal	Moraceae	Tree
30.	<i>Ficus virens</i>	Pakar	Moraceae	Tree
31.	<i>Flacourtia indica</i>	Kaakai	Salicaceae	Tree
32.	<i>Gardenia gummifera</i>	Kaapar	Rubiaceae	Tree
33.	<i>Gardenia latifolia</i>	Papra	Rubiaceae	Tree
34.	<i>Garuga pinnata</i>	Kharpat	Burseraceae	Tree
35.	<i>Gmelina arborea</i>	Khamer	Verbenaceae	Tree
36.	<i>Grewia tiliifolia</i>	Dhankat	Tiliaceae	Tree
37.	<i>Haldina cordifolia</i>	Haldu	Rubiaceae	Tree
38.	<i>Holarrhena pubescens</i>	Kutki	Apocynaceae	Tree
39.	<i>Holoptelea integrifolia</i>	Chilbil	Ulmaceae	Tree
40.	<i>Kydia calycina</i>	Barunga	Malvaceae	Tree
41.	<i>Lagerstroemia parviflora</i>	Sendha	Lythraceae	Tree



S.N.	Scientific Name	Local Name	Family	Habit
42.	<i>Lannea coromandelica</i>	Gunja	Anacardiaceae	Tree
43.	<i>Madhuca longifolia</i>	Mahua	Sapotaceae	Tree
44.	<i>Mallotus philippensis</i>	Sindoor	Euphorbiaceae	Tree
45.	<i>Mangifera indica</i>	Aam	Anacardiaceae	Tree
46.	<i>Manilkara hexandra</i>	Khirmi	Sapotaceae	Tree
47.	<i>Melia azedarach</i>	Bakain	Meliaceae	Tree
48.	<i>Mitragyna parvifolia</i>	Kaima	Rubiaceae	Tree
49.	<i>Moringa oleifera</i>	Sainjna	Moringaceae	Tree
50.	<i>Morus alba</i>	Sehtut	Moraceae	Tree
51.	<i>Phoenix sylvestris</i>	Khajur	Arecaceae	Tree
52.	<i>Phyllanthus emblica</i>	Aaonla	Euphorbiaceae	Tree
53.	<i>Polyalthia longifolia</i>	Ashok	Annonaceae	Small Tree
54.	<i>Pongamia pinnata</i>	Karanj	Fabaceae	Tree
55.	<i>Pterocarpus marsupium</i>	Bijasal	Fabaceae	Tree
56.	<i>Salix tetrasperma</i>	Bansa	Salicaceae	Tree
57.	<i>Schleichera oleosa</i>	Kusum	Sapindaceae	Tree
58.	<i>Semecarpus anacardium</i>	Bhilma	Anacardiaceae	Tree
59.	<i>Shorea robusta</i>	Sal	Dipterocarpaceae	Tree
60.	<i>Sterculia urens</i>	Kullu	Sterculiaceae	Tree
61.	<i>Sterculia villosa</i>	Udaal	Sterculiaceae	Tree
62.	<i>Strychnos nux-vomica</i>	Kochila	Loganiaceae	Tree
63.	<i>Syzygium cumini</i>	Jamun	Myrtaceae	Tree
64.	<i>Tamarindus indica</i>	Imli	Caesalpiniaceae	Tree
65.	<i>Tectona grandis</i>	Sagaun	Verbenaceae	Tree
66.	<i>Terminalia alata</i>	Sanja	Combretaceae	Tree
67.	<i>Terminalia arjuna</i>	Arjun	Combretaceae	Tree
68.	<i>Terminalia bellirica</i>	Bahera	Combretaceae	Tree
69.	<i>Terminalia catappa</i>	Badam	Combretaceae	
70.	<i>Terminalia chebula</i>	Harra	Combretaceae	Tree
71.	<i>Wrightia tinctoria</i>	Dudhi	Apocynaceae	Tree
SHRUBS				
1.	<i>Abutilon indicum</i>	Kanghi	Malvaceae	Shrub
2.	<i>Adhatoda zeylanica</i>	Adusa	Acanthaceae	Shrub
3.	<i>Alangium salvifolium</i>	Ankola	Cornaceae	Shrub
4.	<i>Annona squamosa</i>	Sitaphal	Annonaceae	Shrub
5.	<i>Calotropis gigantea</i>	Safed Aak	Asclepiadaceae	Shrub
6.	<i>Calotropis procera</i>	Gulabi Aak	Asclepiadaceae	Shrub
7.	<i>Carica papaya</i>	Papita	Caricaceae	Shrub
8.	<i>Carissa opaca</i>	Karaunda	Apocynaceae	Shrub
9.	<i>Carissa spinarum</i>	Jangali Karaunda	Apocynaceae	Shrub
10.	<i>Cassia occidentalis</i>	Kasaundhi	Caesalpiniaceae	Shrub
11.	<i>Catunaregam nilotica</i>	Kharhar	Rubiaceae	Shrub
12.	<i>Citrus limon</i>	Neebu	Rutaceae	Shrub
13.	<i>Clerodendrum multiflorum</i>	Bharangi	Verbenaceae	Shrub



S.N.	Scientific Name	Local Name	Family	Habit
14.	<i>Combretum nanum</i>	Bilaura, Medila	Combretaceae	Shrub
15.	<i>Euphorbia nivulia</i>	Sehund	Euphorbiaceae	Shrub
16.	<i>Flemingia chappar</i>	Galphula	Fabaceae	Shrub
17.	<i>Flemingia nana</i>	Gursankari	Tiliaceae	Shrub
18.	<i>Flemingia paniculata</i>	Ramdant	Fabaceae	Shrub
19.	<i>Helicteres isora</i>	Marodfali	Sterculiaceae	Shrub
20.	<i>Holarrhena pubescens</i>	Kurriya	Apocynaceae	Shrub
21.	<i>Indigofera tinctoria</i>	Neel	Fabaceae	Shrub
22.	<i>Ipomoea carnea</i>	Behaya	Convolvulaceae	Shrub
23.	<i>Ixora pavetta</i>	Khujja	Rubiaceae	Shrub
24.	<i>Jatropha curcas</i>	Ratanjyot	Euphorbiaceae	Shrub
25.	<i>Lawsonia inermis</i>	Mehndi	Lythraceae	Shrub
26.	<i>Murraya paniculata</i>	Aathil	Rutaceae	Shrub
27.	<i>Nyctanthes arbor-tristis</i>	Harsingar	Oleaceae	Shrub
28.	<i>Phoenix acaulis</i>	Bhui Khajur	Arecaceae	Shrub
29.	<i>Phyllanthus reticulatus</i>	Panjoli	Euphorbiaceae	Shrub
30.	<i>Ricinus communis</i>	Rendi	Euphorbiaceae	Shrub
31.	<i>Thespesia lampas</i>	Chaumukhia,	Malvaceae	Shrub
32.	<i>Vitex negundo</i>	Nirgundi	Verbenaceae	Shrub
33.	<i>Woodfordia fruticosa</i>	Dhavai	Lythraceae	Shrub
34.	<i>Ziziphus mauritiana</i>	Ber	Rhamnaceae	Shrub
35.	<i>Ziziphus oenoplia</i>	Barari	Rhamnaceae	Shrub
HERBS				
1.	<i>Achyranthes aspera</i>	Apamarg	Amaranthaceae	Herb
2.	<i>Acorus calamus</i>	Buch	Araceae	Herb
3.	<i>Aerva lanata</i>	Gorakhganja	Amaranthaceae	Herb
4.	<i>Ageratum conyzoides.</i>	Agreatum	Asteraceae	Herb
5.	<i>Allium leptophyllum</i>	Van Lehsun	Liliaceae	Herb
6.	<i>Alternanthera sessilis</i>	Gudari sag	Amaranthaceae	Herb
7.	<i>Alysicarpus monilifer</i>	Alisicarpus	Fabaceae	Herb
8.	<i>Andrographis paniculata</i>	Kalmegh	Acanthaceae	Herb
9.	<i>Anisomeles indica</i>	Jangali Tulsi	Lamiaceae	Herb
10.	<i>Argemone Mexicana</i>	Swarnchhiri	Papaveraceae	Herb
11.	<i>Bacopa monnieri</i>	Brahmi	Scrophulariaceae	Herb
12.	<i>Bacopa procumbens</i>	Jal-Neem	Scrophulariaceae	Herb
13.	<i>Boerhavia diffusa.</i>	Raktpunarwa	Nyctaginaceae	Herb
14.	<i>Bulbostylis barbata</i>		Cyperaceae	Sedges
15.	<i>Cassia tora</i>	Chakramard	Caesalpiniaceae	Herb
16.	<i>Catharanthus roseus</i>	Sadabhar	Apocynaceae	Herb
17.	<i>Centella asiatica</i>	Mandukparni	Apiaceae	Herb
18.	<i>Chlorophytum tuberosum</i>	Safed Musli	Liliaceae	Herb
19.	<i>Cleome gynandra</i>	Hurhur	Capparaceae	Herb
20.	<i>Commelina benghalensis</i>	Kanchara	Commelinaceae	Herb
21.	<i>Commelina diffusa</i> Burm	Kanshura	Commelinaceae	Herb



S.N.	Scientific Name	Local Name	Family	Habit
22.	<i>Convolvulus prostratus</i>	Shankhpushpi	Convolvulaceae	Herb
23.	<i>Crotalaria prostrate</i>	Kartik Jhumka	Fabaceae	Herb
24.	<i>Curcuma angustifolia</i>	Tikhur	Zingiberaceae	Herb
25.	<i>Curculigo orchioides</i>	Kali Musli	Hypoxidaceae	Herb
26.	<i>Curcuma aromatica</i>	Van Haldi	Zingiberaceae	Herb
27.	<i>Cyperus rotundus</i>	Motha	Cyperaceae	Sedges
28.	<i>Dentella repens</i>	Parpat	Rubiaceae	herb
29.	<i>Desmodium triflorum</i>	Desmodium	Fabaceae	Herb
30.	<i>Eclipta prostrata</i>	Bhringraj	Asteraceae	Herb
31.	<i>Elytraria acaulis</i>	Sahasramuniya	Acanthaceae	herb
32.	<i>Euphorbia hirta</i>	Doodhi	Euphorbiaceae	Herb
33.	<i>Evolvulus alsinoides</i>	Sakhpushpi	Convolvulaceae	Herb
34.	<i>Fimbristylis dipsacea</i>	NA	Cyperaceae	Sedges
35.	<i>Fimbristylis falcata</i>	Hathi Paw	Cyperaceae	Sedges
36.	<i>Fumaria indica</i>	Pitpapra	Papaveraceae	Herb
37.	<i>Heliotropium indicum</i>	Hastimundi	Boraginaceae	Herb
38.	<i>Ipomoea eriocarpa</i>	Besharam	Convolvulaceae	Herb
39.	<i>Justicia quinqueangularis</i>	Justicia	Acanthaceae	Herb
40.	<i>Leucas aspera</i>	Bhondaki	Lamiaceae	Herb
41.	<i>Melilotus indica</i>	Van Maithi	Fabaceae	herb
42.	<i>Ocimum basilicum</i>	Ban Tulsi	Lamiaceae	Herb
43.	<i>Oxalis corniculata</i>	Teenpati	Oxalidaceae	Herb
44.	<i>Oxalis corniculata</i>	Teen Patti	Oxalidaceae	Herb
45.	<i>Oxalis richardiana</i>	Teenpatti	Oxalidaceae	Herb
46.	<i>Phyllanthus amarus</i>	Bhuin Anwla	Euphorbiaceae	Herb
47.	<i>Physalis minima</i>	Chirponta	Solanaceae	Herb
48.	<i>Polygonum barbatum</i>	Polygonum	Polygonaceae	Herb
49.	<i>Rauvolfia serpentina</i>	Sarpantha	Apocynaceae	Herb
50.	<i>Rungia pectinata</i>	Rungia	Acanthaceae	Herb
51.	<i>Sida acuta</i> Burm.	Mahabala	Malvaceae	Herb
52.	<i>Sida cordifolia</i>	Kharenti	Malvaceae	Herb
53.	<i>Sida rhombifolia</i>	Atibala	Malvaceae	Herb
54.	<i>Solanum nigrum</i>	makoya	Solanaceae	Herb
55.	<i>Solanum virginianum</i>	Katai	Solanaceae	Herb
56.	<i>Tridax procumbens</i>	Khal Muriya	Asteraceae	Herb
57.	<i>Triumfetta pentandra</i>	Chipki	Tiliaceae	Herb
58.	<i>Triumfetta rhomboidea</i>	Chipki	Tiliaceae	Herb
59.	<i>Xanthium strumarium</i>	Gokharu	Asteraceae	Herb
GRASSES				
1.	<i>Aristida adscensionis.</i>	Aristida	Poaceae	Grasses
2.	<i>Bambusa bambos</i>	Bamboo	Poaceae	Grasses
3.	<i>Bothriochloa pertusa</i>	Bothriocloa	Poaceae	Grasses
4.	<i>Cenchrus ciliaris</i>	Cenchrurus	Poaceae	Grasses
5.	<i>Chrysopogon serrulatus</i>	Chrysopogan	Poaceae	Grasses



S.N.	Scientific Name	Local Name	Family	Habit
6.	<i>Cynodon dactylon</i>	Doob	Poaceae	Grasses
7.	<i>Dichanthium annulatum</i>	Dichanthium	Poaceae	Grasses
8.	<i>Digitaria stricta</i>	Digitaria	Poaceae	Grasses
9.	<i>Eragrostis amabilis</i>	Eragrostis	Poaceae	Grasses
10.	<i>Heteropogon contortus</i>	hetropogan	Poaceae	Grasses
11.	<i>Imperata cylindrica</i>	Imperata	Poaceae	Grasses
12.	<i>Oryza minuta</i> J.Presl	Jangali Dhan	Poaceae	Grasses
13.	<i>Saccharum spontaneum</i>	Kans	Poaceae	Grasses
14.	<i>Dendrocalamus strictus</i>	Bans	Poaceae	Grasses
CLIMBERS				
1.	<i>Abrus precatorius</i>	Kali Ghughchi	Fabaceae	Climber
2.	<i>Asparagus racemosus</i>	Shatawar	Liliaceae	Climber
3.	<i>Butea superba</i>	Palas Bel	Fabaceae	Climber
4.	<i>Cissus quadrangularis</i>	Hadjoood	Vitaceae	Climber
5.	<i>Coccinia grandis</i>	Kundururu	Cucurbitaceae	Climber
6.	<i>Combretum roxburghii</i>	Bilora, Medila	Combretaceae	Climber
7.	<i>Gymnema sylvestre</i>	Gudmar	Asclepiadaceae	Climber
8.	<i>Tinospora cordifolia</i>	Giloya	Menispermaceae	Climber
EPIPHYTES				
1.	<i>Cuscuta reflexa.</i>	Amarbel	Convolvulaceae	Epiphyte
2.	<i>Vanda tessellata</i>	Vanda	Orchidaceae	Epiphyte

(Source: Primary Survey Data)

1.15.4.2. Fauna:

The Fauna of a particular region indicates environmental conditions and the well-being of the population residing in the region. Faunal studies help to understand the well-being of the natural systems and indicate the functioning of ecosystem. It helps to monitor pollution levels, biological richness or heritage quality, habitat change quantifying threatened species. The faunal components such as Arthropods, Mollusks, Pisces, Birds and Mammals are very sensitive to any change in the ecosystem, therefore are very good indicators of the health of an ecosystem. The details of faunal diversity of Bandha coal block (Core Zone) are given in Table-1.9.

Table-1.9: Faunal Diversity within Core Zone

Sl. No.	Common Name	Scientific Name	Schedule as per WPA, 1972	Conservation Status as per IUCN
Mammals				
1	Spotted Deer	<i>Axis axis</i>	III	LC #
2	Bandicoot Rat	<i>Bandicota bengalensis</i>	V	LC #



Sl. No.	Common Name	Scientific Name	Schedule as per WPA, 1972	Conservation Status as per IUCN
3	Jackal	<i>Canis aureus</i>	II	LC #
4	Short Nosed Fruit Bat	<i>Cynopterus sphinx</i>	V	LC #
5	Wild Cat	<i>Felis chaus</i>	II	LC #
6	Five striped Palm squirrel	<i>Funambulus pennanti</i>	IV	LC #
7	Mongoose	<i>Herpestres edwardsii</i>	IV	LC #
8	Striped Hyena	<i>Hyaena hyaena</i>	III	NT #
9	Indian Porcupine	<i>Hystrix indica</i>	IV	LC #
10	Hare	<i>Lepus nigricollis</i>	IV	LC #
11	Rhesus Macaque	<i>Macaca mulatta</i>	II	LC #
12	Indian Pangolin	<i>Manis crassicaudata</i>	I	EN #
13	Honey Badger	<i>Mellivora capensis</i>	I	LC #
14	Sloth Bear	<i>Melursus ursinus</i>	I	Vu #
15	Barking Deer	<i>Muntiacus muntjak</i>	III	LC #
16	Indian Field Mouse	<i>Mus booduga</i>	V	LC #
17	Hedgehog	<i>Paraechinus micropus</i>	IV	LC #
18	Indian Pipistrelle	<i>Pipistrellus mimus</i>	IV	LC #
19	Barking Deer	<i>Muntiacus muntjak</i>	III	LC #
20	Flying Fox	<i>Pteropus giganteus</i>	V	LC #
21	Common house Rat	<i>Rattus rattus</i>	V	LC #
22	Hanuman Langur	<i>Semnopithecus entellus</i>	II	LC #
23	Musk Shrew	<i>Suncus murinus</i>	-	LC #
24	Wild Pig	<i>Sus scrofa</i>	III	LC #
25	Common Fox	<i>Vulpes bengalensis</i>	II	LC #
26	Indian Civet	<i>Viverricula indica</i>	II	LC#
Birds				
1	Shikra	<i>Accipiter badius</i>	IV	LC #
2	Jungle Mynah	<i>Acridotheres fuscus</i>	IV	LC #
3	Common Mynah	<i>Acridotheres tristis</i>	IV	LC #
4	Common Iora	<i>Aegithina tiphia</i>	IV	LC #
5	Common Kingfisher	<i>Alcedo atthis</i>	IV	LC #
6	Quaker Babbler	<i>Alcippe poioicephala</i>	IV	LC #
7	Rufous-tailed Finch-lark	<i>Ammomanes phoenicurus</i>	IV	LC #
8	Open Billed Stork	<i>Anastomus oscitans</i>	IV	LC #
9	House swift	<i>Apus affinis</i>	IV	LC #
10	Pond Heron	<i>Ardeola grayii</i>	IV	LC #
11	Ashy Swallow Shrike	<i>Artamus fuscus</i>	-	LC #
12	Eagle Owl	<i>Bubo bubo</i>	IV	LC #
13	Cattle Egret	<i>Bubulcus ibis</i>	IV	LC #
14	Common Indian Nightjar	<i>Caprimulgus asiaticus</i>	IV	LC #
15	Crow Pheasant	<i>Centropus sinensis</i>	IV	LC #



Sl. No.	Common Name	Scientific Name	Schedule as per WPA, 1972	Conservation Status as per IUCN
16	Golden-fronted Leaf-bird	<i>Chloropsis aurifrons</i>	IV	LC #
17	Gold-mantled Leafbird	<i>Chloropsis chochinensis</i>	IV	LC #
18	Pied Crested Cuckoo	<i>Clamator jacobius</i>	IV	LC #
19	Blue Rock Pigeon	<i>Columba livia</i>	IV	LC #
20	White Rumped Shama	<i>Copsychus malabaricus</i>	IV	LC #
21	Magpie Robin	<i>Copsychus saularis</i>	IV	LC #
22	Indian Roller	<i>Coracias benghalensis</i>	IV	LC #
23	Large Cuckoo-shrike	<i>Coracina novaehollandiae</i>	-	LC #
24	Jungle Crow	<i>Corvus marorhynchus</i>	IV	LC #
25	Common Crow	<i>Corvus splendens</i>	V	LC #
26	Common Quail	<i>Coturnix coturnix</i>	IV	LC #
27	Brain-fever bird	<i>Cuculus varius</i>	IV	LC #
28	Indian Tree Pie	<i>Dendrocitta vagabunda</i>	IV	LC #
29	Tickell's Flower Pecker	<i>Dicaeum erythrarhynchus</i>	IV	LC #
30	Fire-breasted Flower Pecker	<i>Dicaeum ignipectus</i>	IV	LC #
31	Drongo	<i>Dicrurus adsimilis</i>	IV	LC #
32	White-bellied Drongo	<i>Dicrurus caerulescens</i>	IV	LC #
33	Racket-tailed Drongo	<i>Dicrurus paradiseus</i>	IV	LC #
34	Golden Backed Woodpecker	<i>Dinopium benghalense</i>	IV	LC #
35	Black Winged Kite	<i>Elanus caeruleus</i>	IV	LC #
36	Ashy-crowned Finch-lark	<i>Eremopterix grisea</i>	IV	LC #
37	Red Munia	<i>Estrilda amandava</i>	IV	LC #
38	Koel	<i>Eudynamis scolopacea</i>	IV	LC #
39	Lesser Kestrel	<i>Falco naumanni</i>	IV	LC #
40	Common Kestrel	<i>Falco tinnunculus</i>	IV	LC #
41	Black Partridge	<i>Francolinus francolinus</i>	IV	LC #
42	Painted Partridge	<i>Francolinus pictus</i>	IV	LC #
43	Grey Partridge	<i>Francolinus pondicerianus</i>	IV	LC #
44	Red Spurfowl	<i>Galloperdix spadicea</i>	IV	LC #
45	Red Jungle Fowl	<i>Gallus gallus</i>	IV	LC #
46	Jungle Owlet	<i>Glaucidium radiatum</i>	IV	LC #
47	White Breasted Kingfisher	<i>Halcyon smyrnensis</i>	IV	LC #
48	Heartspotted Woodpecker	<i>Hemicircus canente</i>	IV	LC #
49	Indian Cliff Swallow	<i>Hirundo fluvicola</i>	-	LC #
50	Wire-tailed Swallow	<i>Hirundo smithii</i>	-	LC #
51	Rufous Backed Shrike	<i>Lanius schach</i>	-	LC #
52	Black-headed Munia	<i>Lonchura malacca</i>	IV	LC #
53	Coppersmith Barbet	<i>Megalaima haemacephala</i>	IV	LC #
54	Crested Bunting	<i>Melophus lathami</i>	IV	LC #
55	Small Green Bee-eater	<i>Merops orientalis</i>	IV	LC #



Sl. No.	Common Name	Scientific Name	Schedule as per WPA, 1972	Conservation Status as per IUCN
56	Blue tailed Bee-eater	<i>Merops philippinus</i>	IV	LC #
57	Blue cheeked Bee-eater	<i>Merops superciliosus</i>	IV	LC #
58	Pariah Kite	<i>Milvus migrans</i>	IV	LC #
59	Blacknaped Flycatcher	<i>Monarcha azurea</i>	IV	LC #
60	Blue headed Rock Thrush	<i>Monticola cinclorhynchus</i>	IV	LC #
61	Pied Wagtail	<i>Motacilla alba</i>	-	LC #
62	Grey Wagtail	<i>Motacilla cinerea</i>	-	LC #
63	Yellow Wagtail	<i>Motacilla flava</i>	-	LC #
64	Large Pied Wagtail	<i>Motacilla maderaspatensis</i>	-	LC #
65	Tickell's Blue Flycatcher	<i>Muscicapa tickelliae</i>	IV	LC #
66	Purple Sunbird	<i>Nectarinia asiatica</i>	IV	LC #
67	Crested Hawk Eagle	<i>Nisaetus cirrhatus</i>	I	LC #
68	Golden Oriole	<i>Oriolus oriolus</i>	IV	LC #
69	Black Headed Oriole	<i>Oriolus xanthornus</i>	IV	LC #
70	Tailor Bird	<i>Orthotomus sutorius</i>	IV	LC #
71	Grey Tit	<i>Parus major</i>	IV	LC #
72	Yellow-cheeked Tit	<i>Parus xanthogenys</i>	IV	LC #
73	House Sparrow	<i>Passer domesticus</i>	IV	LC #
74	Pea-fowl	<i>Pavo cristatus</i>	I	LC #
75	Jungle Bush Quail	<i>Perdica asiatica</i>	IV	LC #
76	Small Minivet	<i>Pericrocotus cinnamomeus</i>	IV	LC #
77	Scarlet Minivet	<i>Pericrocotus flammeus</i>	IV	LC #
78	Black Redstart	<i>Phoenicurus ochruros</i>	IV	LC #
79	Yellow-fronted Pied Woodpecker	<i>Picoides mahrattensis</i>	IV	LC #
80	Indian Pitta	<i>Pitta brachyura</i>	IV	LC #
81	Weaver Bird	<i>Ploceus philippinus</i>	IV	LC #
82	Slaty-headed Scimitar Babbler	<i>Pomatorhinus horsfieldi schisticeps</i>	IV	LC #
83	Ashy Wren-warbler	<i>Prinia socialis</i>	IV	LC #
84	Blossom headed Parakeet	<i>Psittacula cyanocephala</i>	IV	LC #
85	Large Indian Parakeet	<i>Psittacula eupatria</i>	IV	NT #
86	Rose Ringed Parakeet	<i>Psittacula krameri</i>	IV	LC #
87	Red Vent Bulbul	<i>Pycnonotus cafer</i>	IV	LC #
88	Red Whiskered Bulbul	<i>Pycnonotus jocosus</i>	IV	LC #
89	White-throated Fantail Flycatcher	<i>Rhipidura albicollis</i>	IV	LC #
90	White-browed Fantail Flycatcher	<i>Rhipidura aureola</i>	IV	LC #
91	Pied Bush-chat	<i>Saxicola caprata</i>	IV	LC #



Sl. No.	Common Name	Scientific Name	Schedule as per WPA, 1972	Conservation Status as per IUCN
92	Collared Bush-chat	<i>Saxicola torquata</i>	IV	LC #
93	Indian Robin	<i>Saxicoloides fulicata</i>	IV	LC #
94	Chestnut-bellied Nuthatch	<i>Sitta castanea</i>	-	LC #
95	Velvet-fronted Nuthatch	<i>Sitta frontalis</i>	-	LC #
96	Crested Serpent Eagle	<i>Spilornis cheela</i>	-	LC #
97	Spotted Dove	<i>Streptopelia chinensis</i>	IV	LC #
98	Indian Ring Dove	<i>Streptopelia decaocto</i>	IV	LC #
99	Red Turtle Dove	<i>Streptopelia tranquebarica</i>	IV	LC #
100	Pied Mynah	<i>Sturnus contra</i>	IV	LC #
101	Grey-Headed Mynah	<i>Sturnus malabaricus</i>	IV	LC #
102	Black-headed Mynah	<i>Sturnus pagodarum</i>	IV	LC #
103	Rosy Pastor	<i>Sturnus roseus</i>	IV	LC #
104	Paradise Flycatcher	<i>Terpsiphone paradisi</i>	IV	LC #
105	Black Headed Ibis	<i>Threskiornis melanocephalus</i>	IV	NT#
106	Indian Grey Hornbill	<i>Tokus birostris</i>	-	LC #
107	Yellow-footed Green Pigeon	<i>Treron phoenicoptera</i>	IV	LC #
108	Jungle Babbler	<i>Turdoides striatus</i>	IV	LC #
109	Hoopoe	<i>Upupa epops</i>	IV	LC #
110	Red Wattled Lapwing	<i>Vannellus indicus</i>	IV	LC #
Reptiles				
1	Green Vine Snake	<i>Ahaetulla nasuta</i>	IV	LC #
2	Garden Lizard	<i>Calotes versicolor</i>	-	-
3	Russel's Viper	<i>Daboia russelii</i>	IV	LC #
4	Geckos	<i>Hemidactylus sps.</i>	IV	-
5	Common Skink	<i>Mabuya carinata</i>	-	LC #
6	Indian Cobra	<i>Naja naja</i>	IV	LC #
7	Yellow Rat Snake	<i>Ptyas mucosa</i>	II	-
8	Indian Python	<i>Python morulus</i>	I	Vu #
9	Bengal Monitor Lizard	<i>Varanus bengalensis</i>	I	LC #
Fishes				
1	Chela	<i>Chela sp.</i>	NA	NA
2	Magur	<i>Clarias batrachus</i>	NA	NA
3	Punti	<i>Barbus sp.</i>	NA	NA
4	Snakehead	<i>Ophiocephalus punctatus</i>	NA	NA
Butterflies				
1.	Common Emigrant	<i>Catopsilia pomona</i>	NA	NA
2.	Stripped Tiger	<i>Danaus genutia</i>	NA	NA
3.	Common crow	<i>Euploea core</i>	NA	NA
4.	Common Grass Yellow	<i>Eurema hecabe</i>	NA	NA
5.	White orange tip	<i>Ixias marianne</i>	NA	NA



Sl. No.	Common Name	Scientific Name	Schedule as per WPA, 1972	Conservation Status as per IUCN
# LC – Least Concern; NT – Near Threatened; Vu – Vulnerable; EN – Endangered; CR – Critically Endangered				

1.15.5. Biodiversity within the Buffer Zone:

1.15.5.1. Flora:

The block area has a highly undulating and rugged topography. The study area best represents as moist region. The vegetation is fairly dense and occurs on crystalline rocks and yellow loam soils. Soil and topography vary together. It can be helpful to differentiate three subtypes of topography: hilltops and plateaus, lower hill slopes and valley bottom. There are light shrubs and weed growth under the forest canopy. The vegetation mainly consists of tall tress of *Shorea robusta*, *Tectona grandis*, *Terminalia tomentosa*, *Madhuca indica*. The vegetation can be described as moist peninsular Sal Forest.

The total species of plants indicate the floristic richness of the area. However, these species are not uniform in their distribution. The most dominant genera were *Shorea*, *Tectona*, *Bahuinia*, *Cassia*, *Ficus*, *Euphorbia* followed by *Acacia*, *Anogessus*, *Lagerstromia*, *Bamboo*, *Jatropha* and *Madhuca*. The most dominant family was Fabaceae, followed by Poaceae (22 species), Euphorbiaceae (17 species), Mimosaceae (11 species), Caesalpinaceae (13 species), Asteraceae (15 species) and Amaranthaceae (10 species).

There is predominance of herbs and trees followed by shrubs, climbers, epiphytes, grasses and sedges. The common climbers are *Butea superba*, *Combretum decandrum*, and *Bauhinia vahli*. Only two Gymnosperms were noticed which are cultivated in gardens. The Pteridophytes represented reasonably good number (7) along with 6 Bryophytes. They are very sensitive to humidity and moisture. List of plant species as reported according to the Working Plans of **Singrauli Forest Division** has been studied out of which the main associates of Sal as observed in the field are furnished below in **Table No. 1.10**.

Table-1.10: Floral Diversity within buffer zone of Proposed coal mine

SN.	Scientific Name	Local Name	Family	Habit
TREES				
1.	<i>Acacia catechu</i>	Khair	Fabaceae	Tree
2.	<i>Acacia leucophloea</i>	Reunjha	Fabaceae	Tree
3.	<i>Acacia nilotica</i>	Babul	Fabaceae	Tree



SN.	Scientific Name	Local Name	Family	Habit
4.	<i>Aegle marmelos</i>	Bel	Rutaceae	Tree
5.	<i>Ailanthus excelsa</i>	Maharukh	Simaroubaceae	Tree
6.	<i>Alangium salvifolium</i>	Ankol	Cornaceae	Tree
7.	<i>Albizia lebbeck</i>	Kala Siris	Fabaceae	Tree
8.	<i>Albizia odoratissima</i>	Chichwa	Fabaceae	Tree
9.	<i>Albizia procera</i>	Safed Siris	Fabaceae	Tree
10.	<i>Anogeissus latifolia</i>	Dhawda	Combretaceae	Tree
11.	<i>Artocarpus heterophyllus</i>	Kathal	Moraceae	Tree
12.	<i>Azadirachta indica</i>	Neem	Rutaceae	Tree
13.	<i>Bauhinia malabarica</i>	Aasta	Caesalpiniaceae	Tree
14.	<i>Bauhinia purpurea</i>	Kachnar	Caesalpiniaceae	Tree
15.	<i>Bauhinia racemosa</i>	Kathmahula	Caesalpiniaceae	Tree
16.	<i>Bombax ceiba</i>	Semal	Malvaceae	Tree
17.	<i>Boswellia serrata</i>	Salai	Burseraceae	Tree
18.	<i>Bridelia retusa</i>	Kasai	Euphorbiaceae	Tree
19.	<i>Buchanania lanzan</i>	Chironji	Anacardiaceae	Tree
20.	<i>Butea monosperma</i>	Palash	Fabaceae	Tree
21.	<i>Careya arborea</i>	kumbhi	Lecythidaceae	Tree
22.	<i>Cassia fistula</i>	Amaltas	Caesalpiniaceae	Tree
23.	<i>Cassine glauca</i>	Jamrashi	Celastraceae	Tree
24.	<i>Catunaregam nilotica</i>	Kharhar	Rubiaceae	Tree
25.	<i>Chloroxylon swietenia</i>	Bhirra	Rutaceae	Tree
26.	<i>Cordia dichotoma</i>	Lasora	Boraginaceae	Tree
27.	<i>Cordia obliqua</i>	Lasora	Boraginaceae	Tree
28.	<i>Corymbia citriodora</i>	Safeda	Myrtaceae	Tree
29.	<i>Dalbergia latifolia</i>	Shisham	Fabaceae	Tree
30.	<i>Dillenia indica</i>	Bhavya	Dilleniaceae	Tree
31.	<i>Dillenia pentagyna</i>	Karkat	Dilleniaceae	Tree
32.	<i>Diospyros melanoxylon</i>	Tendu	Ebenaceae	Tree
33.	<i>Diospyros montana</i>	Patvan	Ebenaceae	Tree
34.	<i>Dodonaea angustifolia</i>	Khareta	Sapindaceae	Tree
35.	<i>Ehretia laevis</i>	Charmor	Boraginaceae	Tree
36.	<i>Erythrina suberosa</i>	Haduwa	Fabaceae	Tree
37.	<i>Ficus benghalensis</i>	Bargad	Moraceae	Tree
38.	<i>Ficus hispida</i>	Kathmur	Maoraceae	Tree
39.	<i>Ficus mollis</i>	Baril	Moraceae	Tree
40.	<i>Ficus racemosa</i>	Gular	Moraceae	Tree
41.	<i>Ficus religiosa</i>	Papal	Moraceae	Tree
42.	<i>Ficus tinctoria</i>	Paakar	Moraceae	Tree
43.	<i>Ficus virens</i>	Pakar	Moraceae	Tree
44.	<i>Flacourtia indica</i>	Kaakai	Salicaceae	Tree
45.	<i>Gardenia gummifera</i>	Kaapar	Rubiaceae	Tree
46.	<i>Gardenia latifolia</i>	Papra	Rubiaceae	Tree
47.	<i>Garuga pinnata</i>	Kharpat	Burseraceae	Tree



SN.	Scientific Name	Local Name	Family	Habit
48.	<i>Gmelina arborea</i>	Khamer	Verbenaceae	Tree
49.	<i>Grewia tiliifolia</i>	Dhankat	Tiliaceae	Tree
50.	<i>Haldina cordifolia</i>	Haldu	Rubiaceae	Tree
51.	<i>Holarrhena pubescens</i>	Kutki	Apocynaceae	Tree
52.	<i>Holoptelea integrifolia</i>	Chilbil	Ulmaceae	Tree
53.	<i>Kydia calycina</i>	Barunga	Malvaceae	Tree
54.	<i>Lagerstroemia parviflora</i>	Sendha	Lythraceae	Tree
55.	<i>Lannea coromandelica</i>	Gunja	Anacardiaceae	Tree
56.	<i>Litsea glutinosa</i>	Maida	Lauraceae	Tree
57.	<i>Madhuca longifolia</i>	Mahua	Sapotaceae	Tree
58.	<i>Mallotus philippensis</i>	Sindoor	Euphorbiaceae	Tree
59.	<i>Mangifera indica</i>	Aam	Anacardiaceae	Tree
60.	<i>Manilkara hexandra</i>	Khirmi	Sapotaceae	Tree
61.	<i>Melia azedarach</i>	Bakain	Meliaceae	Tree
62.	<i>Miliusa tomentosa</i>	Kaari	Annonaceae	Tree
63.	<i>Mitragyna parvifolia</i>	Kaima	Rubiaceae	Tree
64.	<i>Moringa oleifera</i>	Sainjna	Moringaceae	Tree
65.	<i>Morus alba</i>	Sehtut	Moraceae	Tree
66.	<i>Oroxylum indicum</i>	Sonpatha	Bignoniaceae	Tree
67.	<i>Ougeinia oojeinensis.</i>	Tinsa	Fabaceae	Tree
68.	<i>Phoenix sylvestris</i>	Khajur	Arecaceae	Tree
69.	<i>Phyllanthus emblica</i>	Aonla	Euphorbiaceae	Tree
70.	<i>Polyalthia longifolia</i>	Ashok	Annonaceae	Tree
71.	<i>Pongamia pinnata</i>	Karanj	Fabaceae	Tree
72.	<i>Pterocarpus marsupium</i>	Bijasal	Fabaceae	Tree
73.	<i>Salix tetrasperma</i>	Bansa	Salicaceae	Tree
74.	<i>Schleichera oleosa</i>	Kusum	Sapindaceae	Tree
75.	<i>Schrebera swietenoides</i>	Ghainta	Oleaceae	Tree
76.	<i>Semecarpus anacardium</i>	Bhilma	Anacardiaceae	Tree
77.	<i>Shorea robusta</i>	Sal	Dipterocarpaceae	Tree
78.	<i>Sterculia urens</i>	Kullu	Sterculiaceae	Tree
79.	<i>Sterculia villosa</i>	Udaal	Sterculiaceae	Tree
80.	<i>Stereospermum colais</i>	Chota Padar	Binoniaceae	Tree
81.	<i>Strychnos nux-vomica</i>	Kochila	Loganiaceae	Tree
82.	<i>Symplocos racemosa</i>	Lodra	Symplocaceae	Tree
83.	<i>Syzygium cumini</i>	Jamun	Myrtaceae	Tree
84.	<i>Tamarindus indica</i>	Imli	Caesalpinaceae	Tree
85.	<i>Tectona grandis</i>	Sagaun	Verbenaceae	Tree
86.	<i>Terminalia alata</i>	Sanja	Combretaceae	Tree
87.	<i>Terminalia arjuna</i>	Arjun	Combretaceae	Tree
88.	<i>Terminalia bellirica</i>	Bahera	Combretaceae	Tree
89.	<i>Terminalia catappa</i>	Badam	Combretaceae	
90.	<i>Terminalia chebula</i>	Harra	Combretaceae	Tree
91.	<i>Trema orientalis</i>	Jibhi	Ulmaceae	Tree



SN.	Scientific Name	Local Name	Family	Habit
92.	<i>Trema politoria</i>	Trema	Ulmaceae	Tree
93.	<i>Trewia polycarpa</i>	Surahi	Euphorbiaceae	Tree
94.	<i>Wrightia tinctoria</i>	Dudhi	Apocynaceae	Tree
95.	<i>Ziziphus mauritiana</i>	Ber	Rhamnaceae	Small Tree
SHRUBS				
1.	<i>Abelmoschus manihot</i>	Jangali Bhindi	Malvaceae	Shrub
2.	<i>Abutilon indicum</i>	Kanghi	Malvaceae	Shrub
3.	<i>Adhatoda zeylanica</i>	Adusa	Acanthaceae	Shrub
4.	<i>Alangium salvifolium</i>	Ankola	Cornaceae	Shrub
5.	<i>Annona squamosa</i>	Sitaphal	Annonaceae	Shrub
6.	<i>Barleria prionitis</i>	Katsaraiya	Acanthaceae	Shrub
7.	<i>Boehmeria macrophylla</i>	Sohkhara	Urticaceae	Shrub
8.	<i>Calotropis gigantea</i>	Safed Aak	Asclepiadaceae	Shrub
9.	<i>Calotropis procera</i>	Gulabi Aak	Asclepiadaceae	Shrub
10.	<i>Carica papaya</i>	Papita	Caricaceae	Shrub
11.	<i>Carissa opaca</i>	Karaunda	Apocynaceae	Shrub
12.	<i>Carissa spinarum</i>	Jangali Karaunda	Apocynaceae	Shrub
13.	<i>Cassia occidentalis</i>	Kasaundhi	Caesalpiaceae	Shrub
14.	<i>Catunaregam nilotica</i>	Kharhar	Rubiaceae	Shrub
15.	<i>Citrus limon</i>	Neebu	Rutaceae	Shrub
16.	<i>Clerodendrum multiflorum</i>	Bharangi	Verbenaceae	Shrub
17.	<i>Colebrookea oppositifolia</i>	Ameda	Lamiaceae	Shrub
18.	<i>Combretum nanum</i>	Bilaura, Medila	Combretaceae	Shrub
19.	<i>Euphorbia neriifolia</i>	Sehud	Euphorbiaceae	Shrub
20.	<i>Euphorbia nivulia</i>	katthuar	Euphorbiaceae	Shrub
21.	<i>Flemingia chappar</i>	Galphula	Fabaceae	Shrub
22.	<i>Flemingia nana</i>	Gursankari	Tiliaceae	Shrub
23.	<i>Flemingia paniculata</i>	Ramdant	Fabaceae	Shrub
24.	<i>Grewia helicterifolia</i>	Vansuli	Tiliaceae	Shrub
25.	<i>Grewia hirsuta</i>	Gursankari	Tiliaceae	Shrub
26.	<i>Helicteres isora</i>	Marodfali	Sterculiaceae	Shrub
27.	<i>Hibiscus rosa-sinensis</i>	Gudhal	Malvaceae	Shrub
28.	<i>Holarrhena pubescens</i>	Kutki, Kurriya	Apocynaceae	Shrub
29.	<i>Indigofera tinctoria</i>	Neel	Fabaceae	Shrub
30.	<i>Ixora pavetta</i>	Khujja	Rubiaceae	Shrub
31.	<i>Jasminum humile</i>	Pili Chameli	Oleaceae	Shrub
32.	<i>Jatropha curcas</i>	Ratanjyot	Euphorbiaceae	Shrub
33.	<i>Lawsonia inermis</i>	Mehndi	Lythraceae	Shrub
34.	<i>Leea macrophylla</i>	Hatfun	Leeaceae	Shrub
35.	<i>Murraya paniculata</i>	Aathil	Rutaceae	Shrub
36.	<i>Nyctanthes arbor-tristis</i>	Harsingar	Oleaceae	Shrub



SN.	Scientific Name	Local Name	Family	Habit
37.	<i>Ochna obtusata</i>	Kanak Champa	Ochnaceae	Shrub
38.	<i>Phoenix acaulis</i>	Bhui Khajur	Arecaceae	Shrub
39.	<i>Phyllanthus reticulates</i>	Panjoli	Euphorbiaceae	Shrub
40.	<i>Plumbago zeylanica</i>	Chitrak	Plumbaginaceae	Shrub
41.	<i>Premna barbata</i>	Aradi	Verbenaceae	Shrub
42.	<i>Ricinus communis</i>	Rendi	Euphorbiaceae	Shrub
43.	<i>Tamarix ericoides</i>	Jhau	Tamaricaceae	Shrub
44.	<i>Thespesia lampas</i>	Chaumukhia,	Malvaceae	Shrub
45.	<i>Vitex negundo</i>	Nirgundi	Verbenaceae	Shrub
46.	<i>Woodfordia fruticosa</i>	Dhavai	Lythraceae	Shrub
47.	<i>Ziziphus mauritiana</i>	Ber	Rhamnaceae	Shrub
48.	<i>Ziziphus oenoplia</i>	Barari	Rhamnaceae	Shrub
HERBS				
1.	<i>Acalypha ciliata</i>	Chipki	Asteraceae	Herb
2.	<i>Achyranthes aspera</i>	Apamarg	Amaranthaceae	Herb
3.	<i>Acorus calamus</i>	Buch	Araceae	Herb
4.	<i>Aerva lanata</i>	Gorakhganja	Amaranthaceae	Herb
5.	<i>Aerva sanguinolenta</i>	Gorakh Ganja	Amaranthaceae	Herb
6.	<i>Ageratum conyzoides</i>	Agreatum	Asteraceae	Herb
7.	<i>Allium leptophyllum</i>	Van Lehsun	Liliaceae	Herb
8.	<i>Alternanthera sessilis</i>	Gudari sag	Amaranthaceae	Herb
9.	<i>Alysicarpus monilifer</i>	Alisicarpus	Fabaceae	Herb
10.	<i>Ammannia baccifera</i>	Dadmari	Lythraceae	Herb
11.	<i>Andrographis paniculata</i>	Kalmegh	Acanthaceae	Herb
12.	<i>Anisomeles indica</i>	Jangali Tulsi	Lamiaceae	Herb
13.	<i>Aponogeton crispum</i>	<i>Aponogeton</i>	Aponogetonaceae	Herb
14.	<i>Argemone mexicana</i>	Swarnchhiri	Papaveraceae	Herb
15.	<i>Asphodelus tenuifolius</i>	Bokat	Linaceae	Herb
16.	<i>Atylosia scarabaeoides</i>	Lotar	Fabaceae	Herb
17.	<i>Bacopa monnieri</i>	Brahmi	Scrophulariaceae	Herb
18.	<i>Bacopa procumbens.</i>	Jal-Neem	Scrophulariaceae	Herb
19.	<i>Barleria cristata</i>	Katsaraiya	Acanthaceae	Herb
20.	<i>Boerhavia diffusa</i>	Raktpunarwa	Nyctaginaceae	Herb
21.	<i>Bulbostylis barbata</i>		Cyperaceae	Sedges
22.	<i>Cassia tora</i>	Chakramard	Caesalpinaceae	Herb
23.	<i>Catharanthus roseus</i>	Sadabahar	Apocynaceae	Herb
24.	<i>Centella asiatica</i>	Mandukparni	Apiaceae	Herb
25.	<i>Chlorophytum tuberosum</i>	Safed Musli	Liliaceae	Herb
26.	<i>Cleome gynandra</i>	Hurhur	Capparaceae	Herb
27.	<i>Cleome viscosa</i>	Hurhur	Capparaceae	Herb
28.	<i>Commelina benghalensis</i>	Kanchara	Commelinaceae	Herb
29.	<i>Commelina diffusa</i>	Kanshura	Commelinaceae	Herb
30.	<i>Convolvulus prostratus</i>	Shankhpushpi	Convolvulaceae	Herb



SN.	Scientific Name	Local Name	Family	Habit
31.	<i>Crotalaria prostrata</i>	Kartik Jhumka	Fabaceae	Herb
32.	<i>Curcuma angustifolia</i>	Tikhur	Zingiberaceae	Herb
33.	<i>Curculigo orchioides</i>	Kali Musli	Hypoxidaceae	Herb
34.	<i>Curcuma aromatica</i>	Van Haldi	Zingiberaceae	Herb
35.	<i>Cyperus rotundus</i>	Motha	Cyperaceae	Sedges
36.	<i>Dentella repens</i>	Parpat	Rubiaceae	herb
37.	<i>Desmodium heterocarpon</i>	Salparni	Fabaceae	Herb
38.	<i>Desmodium triflorum</i>	Desmodium	Fabaceae	Herb
39.	<i>Dipteracanthus suffruticosus</i>	Chowlai	Acanthaceae	Herb
40.	<i>Echinops echinatus</i>	Utkatara	Asteraceae	Herb
41.	<i>Eclipta prostrata</i>	Bhringraj	Asteraceae	Herb
42.	<i>Elytraria acaulis</i>	Sahasramuniya	Acanthaceae	herb
43.	<i>Euphorbia hirta</i>	Doodhi	Euphorbiaceae	Herb
44.	<i>Evolvulus alsinoides</i>	Sakhpushpi	Convolvulaceae	Herb
45.	<i>Fimbristylis dipsacea</i>	NA	Cyperaceae	Sedges
46.	<i>Fimbristylis falcata</i>	Hathi Paw	Cyperaceae	Sedges
47.	<i>Fumaria indica</i>	Pitpapa	Papaveraceae	Herb
48.	<i>Heliotropium indicum</i>	Hastimundi	Boraginaceae	Herb
49.	<i>Hygrophila salicifolia</i>	Talamkhana	Acanthaceae	Herb
50.	<i>Ipomoea eriocarpa</i>	Besharam	Convolvulaceae	Herb
51.	<i>Justicia quinqueangularis</i>	Justicia	Acanthaceae	Herb
52.	<i>Leucas aspera</i>	Bhondaki	Lamiaceae	Herb
53.	<i>Melilotus indica</i>	Van Maithi	Fabaceae	herb
54.	<i>Ocimum basilicum</i>	Ban Tulsi	Lamiaceae	Herb
55.	<i>Oxalis corniculata</i>	Teenpati	Oxalidaceae	Herb
56.	<i>Oxalis corniculata</i>	Teen Patti	Oxalidaceae	Herb
57.	<i>Oxalis richardiana</i>	Teenpatti	Oxalidaceae	Herb
58.	<i>Phyllanthus amarus</i>	Bhuin Anwla	Euphorbiaceae	Herb
59.	<i>Physalis minima</i>	Chirponta	Solanaceae	Herb
60.	<i>Polygonum barbatum</i>	Polygonum	Polygonaceae	Herb
61.	<i>Polygonum glabrum</i>	Polygonum	Polygonaceae	Herb
62.	<i>Rauwolfia serpentina</i>	Sarpandha	Apocynaceae	Herb
63.	<i>Rungia pectinata</i>	Rungia	Acanthaceae	Herb
64.	<i>Scleria levis Retz.</i>	Scleria	Cyperaceae	Sedges
65.	<i>Sesbania bispinosa</i>	Sirmili	Fabaceae	Herb
66.	<i>Sida acuta</i>	Mahabala	Malvaceae	Herb
67.	<i>Sida cordifolia</i>	Kharenti	Malvaceae	Herb
68.	<i>Sida rhombifolia</i>	Atibala	Malvaceae	Herb
69.	<i>Solanum nigrum</i>	makoya	Solanaceae	Herb
70.	<i>Solanum virginianum</i>	Bhatkataiya	Solanaceae	Herb
71.	<i>Tridax procumbens</i>	Khal Muriya	Asteraceae	Herb
72.	<i>Triumfetta pentandra</i>	Chipki	Tiliaceae	Herb
73.	<i>Triumfetta rhomboidea</i>	Chipki	Tiliaceae	Herb
74.	<i>Xanthium strumarium</i>	Gokharu	Asteraceae	Herb



SN.	Scientific Name	Local Name	Family	Habit
GRASSES				
1.	<i>Apluda mutica</i>	Apluda	Poaceae	Grasses
2.	<i>Apocopis vaginata</i>	Apocopis	Poaceae	Grasses
3.	<i>Aristida adscensionis</i>	Aristida	Poaceae	Grasses
4.	<i>Bambusa bambos</i>	Bamboo	Poaceae	Grasses
5.	<i>Bothriochloa glabra</i>	Bothriochloa	Poaceae	Grasses
6.	<i>Bothriochloa intermedia</i>	Bothriochloa	Poaceae	Grasses
7.	<i>Bothriochloa pertusa</i>	Bothriochloa	Poaceae	Grasses
8.	<i>Brachiaria eruciformis</i>	Brachiaria	Poaceae	Grasses
9.	<i>Brachiaria ramosa</i>	Brachiaria	Poaceae	Grasses
10.	<i>Brachiaria reptans</i>	Brachiaria	Poaceae	Grasses
11.	<i>Cenchrus ciliaris</i>	Cenchrus	Poaceae	Grasses
12.	<i>Chloris dolichostachya</i>	Chloris	Poaceae	Grasses
13.	<i>Chloris virgata</i>	Chloris	Poaceae	Grasses
14.	<i>Chrysopogon fulvus</i>	Chrysopogon	Poaceae	Grasses
15.	<i>Chrysopogon serrulatus</i>	Chrysopogon	Poaceae	Grasses
16.	<i>Cymbopogon martinii</i>	Musail	Poaceae	Grasses
17.	<i>Cynodon dactylon</i>	Doob	Poaceae	Grasses
18.	<i>Dichanthium annulatum</i>	Dichanthium	Poaceae	Grasses
19.	<i>Digitaria stricta</i>	Digitaria	Poaceae	Grasses
20.	<i>Eragrostis amabilis</i>	Eragrostis	Poaceae	Grasses
21.	<i>Eragrostis atrovirens</i>	Eragrostis	Poaceae	Grasses
22.	<i>Eragrostis cilianensis</i>	Eragrostis	Poaceae	Grasses
23.	<i>Eragrostis ciliaris</i>	Eragrostis	Poaceae	Grasses
24.	<i>Heteropogon contortus</i>	hetropogon	Poaceae	Grasses
25.	<i>Imperata cylindrica</i>	Imperata	Poaceae	Grasses
26.	<i>Oplismenus compositus</i>	Oplismenus	Poaceae	Grasses
27.	<i>Oropetium thomaeum</i>	Oplismenus	Poaceae	Grasses
28.	<i>Oryza minuta</i>	Jangali Dhan	Poaceae	Grasses
29.	<i>Panicum psilopodium</i>	Panicum	Poaceae	Grasses
30.	<i>Panicum sumatrense</i>	Panicum	Poaceae	Grasses
31.	<i>Paspalidium flavidum</i>	Paspalum	Poaceae	Grasses
32.	<i>Paspalidium punctatum</i>	Paspalum	Poaceae	Grasses
33.	<i>Pennisetum pedicellatum</i>	Pennisetum	Poaceae	Grasses
34.	<i>Pennisetum polystachyon</i>	Pennisetum	Poaceae	Grasses
35.	<i>Perotis indica</i>	Perotis	Poaceae	Grasses
36.	<i>Saccharum spontaneum</i>	Kans	Poaceae	Grasses
37.	<i>Dendrocalamus strictus</i>	Bans	Poaceae	Grasses
CLIMBERS				
1.	<i>Abrus precatorius</i>	Kali Ghughchi	Fabaceae	Climber
2.	<i>Asparagus racemosus</i>	Shatawar	Liliaceae	Climber
3.	<i>Butea superba</i>	Palas Bel	Fabaceae	Climber
4.	<i>Cissus quadrangularis</i>	Hadjood	Vitaceae	Climber
5.	<i>Coccinia grandis</i>	Kundur	Cucurbitaceae	Climber



SN.	Scientific Name	Local Name	Family	Habit
6.	<i>Combretum roxburghii</i>	Bilora, Medila	Combretaceae	Climber
7.	<i>Cryptolepis buchanani</i>	Nagbel	Asclepiadaceae	Climber
8.	<i>Gymnema sylvestre</i>	Gudmar	Asclepiadaceae	Climber
9.	<i>Tinospora cordifolia</i>	Giloya	Menispermaceae	Climber
EPIPHYTES				
1.	<i>Cuscuta reflexa</i>	Amarbel	Convolvulaceae	Epiphyte
2.	<i>Vanda tessellata</i>	Vanda	Orchidaceae	Epiphyte



Mohanban R.F.

1.15.5.2. Fauna:

The study of fauna takes a substantial amount of time to understand the specific faunal characteristic of an area. The assessments of fauna were done by extensive field survey of the area. During the survey, the presence of wildlife has been confirmed by direct field survey and by the oral information by local inhabitants and data procured from the concerned forest department has been made and given below (**Table-1.11**).



Table-1.11: Faunal Diversity from Study Area (Buffer Zone)

Sl. No.	Common Name	Scientific Name	Schedule of WPA, 1972	Conservation Status as per IUCN
Mammals				
1	Spotted Deer	<i>Axis axis</i>	III	LC #
2	Bandicoot Rat	<i>Bandicota bengalensis</i>	V	LC #
3	Nilgai	<i>Boselaphus tragocamelus</i>	III	LC #
4	Jackal	<i>Canis aureus</i>	II	LC #
5	Indian Wolf	<i>Canis lupus callipes</i>	I	LC #
6	Sambhar	<i>Cervus unicolor</i>	III	LC #
7	Dhole	<i>Cuon alpinus</i>	II	EN #
8	Short Nosed Fruit Bat	<i>Cynopterus sphinx</i>	V	LC #
9	Indian Elephant	<i>Elephas maximus</i>	I	EN #
11	Wild Cat	<i>Felis chaus</i>	II	LC #
12	Five striped Palm squirrel	<i>Funambulus pennanti</i>	IV	LC #
13	Chinkara	<i>Gazella bennettii</i>	I	LC #
14	Mongoose	<i>Herpestres edwardsii</i>	IV	LC #
15	Striped Hyena	<i>Hyaena hyaena</i>	III	NT #
16	Indian Porcupine	<i>Hystrix indica</i>	IV	LC #
17	Hare	<i>Lepus nigricollis</i>	IV	LC #
18	Otter / Odha	<i>Lutra lutra</i>	II	NT#
19	Rhesus Macaque	<i>Macaca mulatta</i>	II	LC #
20	Indian Pangolin	<i>Manis crassicaudata</i>	I	EN #
21	Honey Badger	<i>Mellivora capensis</i>	I	LC #
22	Sloth Bear	<i>Melursus ursinus</i>	I	Vu #
23	Barking Deer	<i>Muntiacus muntjak</i>	III	LC #
24	Indian Field Mouse	<i>Mus booduga</i>	V	LC #
25	Leopard	<i>Panthera pardus</i>	I	Vu #
27	Hedgehog	<i>Paraechinus micropus</i>	IV	LC #
28	Indian Pipistrelle	<i>Pipistrellus mimus</i>	IV	LC #
29	Flying Fox	<i>Pteropus giganteus</i>	V	LC #
30	Common house Rat	<i>Rattus rattus</i>	V	LC #
31	Hanuman Langur	<i>Semnopithecus entellus</i>	II	LC #
32	Musk Shrew	<i>Suncus murinus</i>	-	LC #
33	Wild Pig	<i>Sus scrofa</i>	III	LC #
34	Four-horned antelope	<i>Tetracerus quadricornis</i>	I	Vu #
35	Mouse Deer	<i>Tragulus meminna</i>	I	LC #
36	Indian Civet	<i>Viverricula indica</i>	II	LC#
37	Indian Fox	<i>Vulpes bengalensis</i>	II	LC #
Birds				
1	Shikra	<i>Accipter badius</i>	IV	LC #



2	Jungle Mynah	<i>Acridotheres fuscus</i>	IV	LC #
3	Common Mynah	<i>Acridotheres tristis</i>	IV	LC #
4	Common Iora	<i>Aegithina tiphia</i>	IV	LC #
5	Common Kingfisher	<i>Alcedo atthis</i>	IV	LC #
6	Quaker Babbler	<i>Alcippe poioicephala</i>	IV	LC #
7	Rufous-tailed Finch-lark	<i>Ammomanes phoenicurus</i>	IV	LC #
8	Common Teal	<i>Anas crecca</i>	IV	LC #
9	Open Billed Stork	<i>Anastomus oscitans</i>	IV	LC #
10	Pied Hornbill	<i>Anthracoceros coronatus</i>	I	NT #
11	House swift	<i>Apus affinis</i>	IV	LC #
12	Tawny Eagle	<i>Aquila rapax</i>	I	VU #
13	Grey Heron	<i>Ardea cineara</i>	IV	LC #
14	Pond Heron	<i>Ardeola grayii</i>	IV	LC #
15	Ashy Swallow Shrike	<i>Artamus fuscus</i>	-	LC #
16	Eagle Owl	<i>Bubo bubo</i>	IV	LC #
17	Cattle Egret	<i>Bubulcus ibis</i>	IV	LC #
18	Common Indian Nightjar	<i>Caprimulgus asiaticus</i>	IV	LC #
19	Crow Pheasant	<i>Centropus sinensis</i>	IV	LC #
20	Crow Pheasant	<i>Centropus sinensis</i>	IV	LC #
21	Whiskered Tern	<i>Chlidonias hybrida</i>	-	LC #
22	Golden-fronted Leaf-bird	<i>Chloropsis aurifrons</i>	IV	LC #
23	Gold-mantled Leafbird	<i>Chloropsis chochinchinensis</i>	IV	LC #
24	White Necked Stork	<i>Ciconia episcopus</i>	IV	VU #
25	White stork	<i>Ciconia episcopus</i>	I	LC #
26	Pied Crested Cuckoo	<i>Clamator jacobius</i>	IV	LC #
27	Blue Rock Pigeon	<i>Columba livia</i>	IV	LC #
28	White Rumped Shama	<i>Copsychus malabaricus</i>	IV	LC #
29	Magpie Robin	<i>Copsychus saularis</i>	IV	LC #
30	Magpie Robin	<i>Copsychus saularis</i>	IV	LC #
31	Indian Roller	<i>Coracias benghalensis</i>	IV	LC #
32	Large Cuckoo-shrike	<i>Coracina novaehollandiae</i>	-	LC #
33	Jungle Crow	<i>Corvus marorhynchos</i>	IV	LC #
34	Common Crow	<i>Corvus splendens</i>	V	LC #
35	Common Quail	<i>Coturnix coturnix</i>	IV	LC #
36	Brain-fever bird	<i>Cuculus varius</i>	IV	LC #
37	Indian Tree Pie	<i>Dendrocitta vagabunda</i>	IV	LC #
38	Lesser Whistling Teal	<i>Dendrocygna javanica</i>	IV	LC #
39	Tickell's Flower Pecker	<i>Dicaeum erythrarhynchos</i>	IV	LC #
40	Fire-breasted Flower Pecker	<i>Dicaeum ignipectus</i>	IV	LC #
41	Drongo	<i>Dicrurus adsimilis</i>	IV	LC #
42	White-bellied Drongo	<i>Dicrurus caerulescens</i>	IV	LC #



43	Greater Racket-tailed Drongo	<i>Dicrurus paradiseus</i>	IV	LC #
44	Lesser Golden Backed Woodpecker	<i>Dinopium benghalense</i>	IV	LC #
45	Little Egret	<i>Egretta garzetta</i>	IV	LC #
46	Black Winged Kite	<i>Elanus caeruleus</i>	IV	LC #
47	Ashy-crowned Finch-Lark	<i>Eremopterix grisea</i>	IV	LC #
48	Red Munia	<i>Estrilda amandava</i>	IV	LC #
49	Koel	<i>Eudynamis scolopacea</i>	IV	LC #
50	Lesser Kestrel	<i>Falco naumanni</i>	IV	LC #
51	Common Kestrel	<i>Falco tinnunculus</i>	IV	LC #
52	Black Partridge	<i>Francolinus francolinus</i>	IV	LC #
53	Painted Partridge	<i>Francolinus pictus</i>	IV	LC #
54	Grey Partridge	<i>Francolinus pondicerianus</i>	IV	LC #
55	Fantail Snipe	<i>Gallinago gallinago</i>	IV	LC #
56	Moorhen	<i>Gallinula chloropus</i>	IV	LC #
57	Red Spurfowl	<i>Galloperdix spadicea</i>	IV	LC #
58	Red Jungle Fowl	<i>Gallus gallus</i>	IV	LC #
59	Jungle Owlet	<i>Glaucidium radiatum</i>	IV	LC #
60	White Rumped Vulture	<i>Gyps bengalensis</i>	I	CR #
61	White Breasted Kingfisher	<i>Halcyon smyrnensis</i>	IV	LC #
62	Heartspotted Woodpecker	<i>Hemicircus canente</i>	IV	LC #
63	Black-winged Stilt	<i>Himantopus himantopus</i>	IV	LC #
64	Indian Cliff Swallow	<i>Hirundo fluvicola</i>	-	LC #
65	Wire-tailed Swallow	<i>Hirundo smithii</i>	-	LC #
66	Pheasant Tailed Jacana	<i>Hydrophasianus chirurgus</i>	IV	LC #
67	Rufous Backed Shrike	<i>Lanius schach</i>	-	LC #
68	Black-headed Munia	<i>Lonchura malacca</i>	IV	LC #
69	Coppersmith Barbet	<i>Megalaima haemacephala</i>	IV	LC #
70	Crested Bunting	<i>Melophus lathami</i>	IV	LC #
71	Small Green Bee-eater	<i>Merops orientalis</i>	IV	LC #
72	Blue tailed Bee-eater	<i>Merops philippinus</i>	IV	LC #
73	Blue cheeked Bee-eater	<i>Merops superciliosus</i>	IV	LC #
74	Bronze Winged Jacana	<i>Metopidius indicus</i>	IV	LC #
75	Pariah Kite	<i>Milvus migrans</i>	IV	LC #
76	Blacknaped Flycatcher	<i>Monarcha azurea</i>	IV	LC #
77	Blue headed Rock Thrush	<i>Monticola cinclorhynchus</i>	IV	LC #
78	Pied Wagtail	<i>Motacilla alba</i>	-	LC #
79	Grey Wagtail	<i>Motacilla cinerea</i>	-	LC #



80	Yellow Wagtail	<i>Motacilla flava</i>	-	LC #
81	Large Pied Wagtail	<i>Motacilla maderaspatensis</i>	-	LC #
82	Tickell's Blue Flycatcher	<i>Muscicapa tickelliae</i>	IV	LC #
83	Purple Sunbird	<i>Nectarinia asiatica</i>	IV	LC #
84	Golden Oriole	<i>Oriolus oriolus</i>	IV	LC #
85	Black Headed Oriole	<i>Oriolus xanthornus</i>	IV	LC #
86	Tailor Bird	<i>Orthotomus sutorius</i>	IV	LC #
87	Grey Tit	<i>Parus major</i>	IV	LC #
88	Yellow-cheeked Tit	<i>Parus xanthogenys</i>	IV	LC #
89	House Sparrow	<i>Passer domesticus</i>	IV	LC #
90	Peafowl	<i>Pavo cristatus</i>	I	LC #
91	Jungle Bush Quail	<i>Perdica asiatica</i>	IV	LC #
92	Small Minivet	<i>Pericrocotus cinnamomeus</i>	IV	LC #
93	Scarlet Minivet	<i>Pericrocotus flammmeus</i>	IV	LC #
94	Small Indian Cormorant	<i>Phalacrocorax niger</i>	IV	LC #
95	Black Redstart	<i>Phoenicurus ochruros</i>	IV	LC #
96	Yellow-fronted Pied Woodpecker	<i>Picoides mahrattensis</i>	IV	LC #
97	Indian Pitta	<i>Pitta brachyura</i>	IV	LC #
98	Weaver Bird	<i>Ploceus philippinus</i>	IV	LC #
99	Eastern Golden Plover	<i>Pluvialis dominica</i>	IV	LC #
100	Slaty-headed Scimitar Babbler	<i>Pomatorhinus horsfieldi schisticeps</i>	IV	LC #
101	Purple Moorhen	<i>Porphyrio porphyrio</i>	IV	LC #
102	Ashy Wren-warbler	<i>Prinia socialis</i>	IV	LC #
103	Blossom headed Parakeet	<i>Psittacula cyanocephala</i>	IV	LC #
104	Large Indian Parakeet	<i>Psittacula eupatria</i>	IV	NT #
105	Rose Ringed Parakeet	<i>Psittacula krameri</i>	IV	LC #
106	Red Vent Bulbul	<i>Pycnonotus cafer</i>	IV	LC #
107	Red Whiskered Bulbul	<i>Pycnonotus jocosus</i>	IV	LC #
108	White-throated Fantail Flycatcher	<i>Rhipidura albicollis</i>	IV	LC #
109	White-browed Fantail Flycatcher	<i>Rhipidura aureola</i>	IV	LC #
110	Painted Snipe	<i>Rostratula benghalensis</i>	IV	LC #
111	Pied Bush-chat	<i>Saxicola caprata</i>	IV	LC #
112	Collared Bush-chat	<i>Saxicola torquata</i>	IV	LC #
113	Indian Robin	<i>Saxicoloides fulicata</i>	IV	LC #
114	Chestnut-bellied Nuthatch	<i>Sitta castanea</i>	-	LC #
115	Velvet-fronted Nuthatch	<i>Sitta frontalis</i>	-	LC #
116	Crested Serpent Eagle	<i>Spilornis cheela</i>	-	LC #



117	Crested Hawk Eagle	<i>Nisaetus cirrhatus</i>	I	LC #
118	Spotted Dove	<i>Streptopelia chinensis</i>	IV	LC #
119	Indian Ring Dove	<i>Streptopelia decaocto</i>	IV	LC #
120	Red Turtle Dove	<i>Streptopelia tranquebarica</i>	IV	LC #
121	Pied Mynah	<i>Sturnus contra</i>	IV	LC #
122	Grey-Headed Mynah	<i>Sturnus malabaricus</i>	IV	LC #
123	Black-headed Mynah	<i>Sturnus pagodarum</i>	IV	LC #
124	Rosy Pastor	<i>Sturnus roseus</i>	IV	LC #
125	Paradise Flycatcher	<i>Terpsiphone paradisi</i>	IV	LC #
126	Black Headed Ibis	<i>Threskiornis melanocephalus</i>	IV	NT#
127	Indian Grey Hornbill	<i>Tokus birostris</i>	-	LC #
128	King Vulture	<i>Sarcogyps calvus</i>	I	CR #
129	Yellow-footed Green Pigeon	<i>Treron phoenicoptera</i>	IV	LC #
130	Redshank	<i>Tringa totanus</i>	IV	LC #
131	Jungle Babbler	<i>Turdoides striatus</i>	IV	LC #
132	Hoopoe	<i>Upupa epops</i>	IV	LC #
133	Red Wattled Lapwing	<i>Vannellus indicus</i>	IV	LC #
134	Red Wattled Lapwing	<i>Vannellus indicus</i>	IV	LC #
Reptiles				
1	Garden Lizard	<i>Calotes versicolor</i>	-	-
2	Russel's Viper	<i>Daboia russelii</i>	IV	LC #
3	Common Skink	<i>Mabuya carinata</i>	-	LC #
4	Indian Cobra	<i>Naja naja</i>	IV	LC #
5	Yellow Rat Snake	<i>Ptyas mucosa</i>	II	-
6	Indian Python	<i>Python morulus</i>	I	Vu #
7	Bengal Monitor Lizard	<i>Varanus bengalensis</i>	I	LC #
8	Russel's Viper	<i>Vipera russelii</i>	II	NA
9	Checkered Keelback	<i>Xenochrophis piscator</i>	IV	-
Fishes				
1.	Chelluah	<i>Aspidoparia morar</i>	NA	NA
2.	Barna Baril	<i>Barilius barna</i>	NA	NA
3.	Katla	<i>Catla catla</i>	NA	NA
4.	Chaguni	<i>Chagunius chagunio</i>	NA	NA
5.	Great Snakehead	<i>Channa marulius</i>	NA	NA
6.	Reba Carp	<i>Cirrhinus reba</i>	NA	NA
7.	Singi	<i>Clarias batrachus</i>	NA	NA
8.	Common Carp	<i>Cyprinus carpio</i>	NA	NA
9.	Calbasu	<i>Labeo calbasu</i>	NA	NA
10.	Kali, Boalla	<i>Labeo dyocheilus</i>	NA	NA
11.	Rohu	<i>Labeo rohita</i>	NA	NA
12.	Catfish	<i>Mystus cavasius</i>	NA	NA
13.	Bronze Feather Back	<i>Notopterus notopterus</i>	NA	NA



14.	Swamp Barb	<i>Puntius chola</i>	NA	NA
15.	Hilsa	<i>Tenualosa ilisha</i>	NA	NA
Butterflies				
1.	Common Emigrant	<i>Catopsilia pomona</i>	NA	NA
2.	Common map	<i>Cyrestis thyodamas</i>	NA	NA
3.	Stripped Tiger	<i>Danaus genutia</i>	NA	NA
4.	Plain Tiger	<i>Danaus chrysippus</i>	NA	NA
5.	Stripped Tiger	<i>Danaus genutia</i>	NA	NA
6.	Common crow	<i>Euploea core</i>	NA	NA
7.	Common Grass Yellow	<i>Eurema hecabe</i>	NA	NA
8.	western blue sapphir	<i>Heliophorus sp.</i>	NA	NA
9.	Danaid Egg Fly	<i>Hypolimanas misippus</i>	NA	NA
10.	White orange tip	<i>Ixias marianne</i>	NA	NA
11.	Blue pancy	<i>Junonia orithya</i>	NA	NA
12.	Common evening Brown	<i>Melanitis leda</i>	NA	NA
13.	Common Bush Brown	<i>Mycalesis perseus</i>	NA	NA
14.	Lime butterfly	<i>Papilio demoleus</i>	NA	NA
#LC – Least Concern; NT – Near Threatened; Vu – Vulnerable; EN – Endangered. CR – Critically Endangered				

(Source: Primary Survey Data) Note: - NA= Not assessed yet,

1.15.6. Aquatic Ecology:

The biological species are the best indicators of environmental quality. This includes different species, such as phytoplankton, zooplankton, benthos, fishes etc. Studies on biological aspects of certain ecosystems are an important part of any environmental impact assessment in view of the need for conservation of environmental quality and safety of aquatic life.

From the baseline survey on existing aquatic environmental conditions in and around the proposed Project on the Hurdul Nala and Jhana Nala within the mine lease area and Mahan River, Rampa River, Sukhra Nadi, Hariya Nadi, Bandha nala, & Kachanmuda nala and other drainages/ponds the following data were generated:

- ▶ Biological characteristics of river water
- ▶ Inventorization of phytoplankton and Zooplankton
- ▶ Present status of riverine fish fauna: Identification of fish species
- ▶ Migratory pattern, feeding and breeding grounds of the fish fauna.
- ▶ Assessment of local catches during the field trips to assess the fish fauna.



1.15.6.1. Assessment of Aquatic diversity:

The samples for qualitative and quantitative analysis of plankton were collected from the sub surface layer at knee depth. Water samples were filtered through plankton net of 20 μ mesh size (APHA, 1971). The filtered samples were concentrated by using the centrifuge. By using Lackey's drops method and light microscope (Lackey, 1938), the qualitative analysis was carried out for phytoplankton and zooplankton (**Table 1.12**). The standard flora and other literature were followed for the qualitative evaluation of Plankton.

Table 1.12: Phytoplankton and Zooplanktons Recorded in the Study Area

	Phytoplankton Species	Zooplankton Species
1.	Navicula sp. (Diatom)	Daphnia sp.
2.	Cyclotella sp. (Diatom)	Moina sp.
3.	Synedra sp. (Diatom)	Paramecium sp.
4.	Pinnularia sp. (Diatom)	Euglena sp.
5.	Oscillatoria sp.	Ranatra sp.
6.	Nostoc sp.	Larvae of culex sp.
7.	Anabaena sp. (Diatom)	Larvae of Dytiscus sp.
8.	Spirogyra sp.	Cyclops sp.
9.	Pediastrum.sp.	Diaptomus sp.
10.	Microspora sp.	

1.15.6.2. Fish:

Fish occurrences were determined by collecting samples using different fishing gears like cast net, scoop net, hand net, hook-line, pot and open local devices methods. Also, visual observations in different habitats were made. Fishes were identified up to the species level with the help of keys of Jayaram (1981), Menon (1987) and Talwar and Jhingran (1997). IUCN red data list (2006) was compared to assess threatened, endangered and vulnerable species in the study area.

List of Fishes in the Study Area:

Fish are the integral component of streams and rivers which are not only the best sources of food and animal protein for the human population but provides a source of income for the local inhabitants. People capture fishes for their consumption and in some cases to sell in local markets as an alternative means for procurement of foods and other requirement of



daily needs.

Table: 1.13 Common fish species recorded in Buffer Zone

No.	Common name	Scientific name
1.	Catla	<i>Catla catla</i>
2.	Rohu	<i>Labeo rohita</i>
3.	Maral	<i>Channa punctata</i>
4.	Dokh	<i>Channa gachua</i>
5.	Mangur	<i>Clarias batrachus</i>
6.	Dandvan	<i>Garra mulllya</i>
7.	Malya	<i>Oreochromis mosambicus</i>
8.	Darai	<i>Puntius sarana</i>
9.	Khavli	<i>Puntius sophore</i>
10.	Dara	<i>Rasbora daniconius</i>
11.	Chikli	<i>Indoreonectes evezardi</i>
12.	Chikani	<i>Lepidocephalichthys thermalis</i>

1.15.6.3. Aquatic Floral Diversity:

Wetlands are very useful to us. By producing resources, enabling recreational activities and controlling flood and pollution, they contribute to the national and local economies and environmental consequences. Wetlands provide important and incredible services to society, these services can neither be sold nor do they have the market value and tried to give wetlands an economic value.

Table 1.14: Wetland/Marshland Diversity of Study area

Family	Botanical Name	Local Name
Salviniaceae	<i>Azolla pinnata</i>	Mosquito Fern
Commelinaceae	<i>Commelina benghalensis</i>	Kana
Cyperaceae	<i>Cyperus alternifolius</i>	Umbrella Sedge
Poaceae	<i>Echinochloa colona</i>	Shama
Pontederiaceae	<i>Eichhornia crassipes</i>	Jal Kumbhi
Lemnaceae	<i>Lemna minor</i>	Duck Weed
Onagraceae	<i>Ludwigia adscendens</i>	Water Primrose
Marsileaceae	<i>Marsilea quadrifolia</i>	Four Leaf Clover
Oxalidaceae	<i>Oxalis corniculata</i>	Amrul
Ranunculaceae	<i>Ranunculus sceleratus</i>	Aglaon
Typhaceae	<i>Typha angustifolia</i>	Patera





Bandha Nala



***Eichhornia crassipes* near local ponds**



1.15.7. Details of Endemic, Threatened and Scheduled Species:

As per list of **The Indian Wildlife (Protection) Act, 1972**, Fauna coming under the **schedule - I** is treated as endangered species. The **schedule - I** fauna as per reconnaissance survey are listed in **Table-1.15**. Although these are very common species and found in every locality, even in villages, certain steps should be taken to conserve the critical wildlife:

- I. Programs for the conservation of wildlife will be formulated and implemented outside the protected areas by educating the local communities with help of local public agencies, and other stakeholders including the environment division officers of our company, in order to reduce the scope of man-animal conflict.
- II. It will be ensured that human activities on the fringe of the protected areas do not degrade the habitat.

Overall, the status of wildlife in a region is an accurate index of the state of ecological resources, and thus, of the natural resources base of human well-being. This indicates the interdependent nature of ecological entities (the web of life), in which wildlife is a vital link and a base of eco-tourism. Thus, the importance of conserving and protecting wildlife will be spread among the local people.

Table-1.15 List of Scheduled species from study area

Sr. No.	Scientific name	Common Name	Schedule
Mammals			
1.	<i>Melursus ursinus</i>	Sloth bear	Schedule-I
2.	<i>Elephas maximus indicus</i>	Elephant	Schedule-I
3.	<i>Manis crassicaudata</i>	Pangolin	Schedule-I
4.	<i>Canis lupus callipes</i>	Indian Wolf	Schedule-I
5.	<i>Mellivora capensis</i>	Honey Badger	Schedule-I
6.	<i>Panthera pardus</i>	Leopard	Schedule-I
7.	<i>Tetracerus quadricornis</i>	Four-horned antelope	Schedule-I
8.	<i>Gazella bennettii</i>	Chinkara	Schedule-I
9.	<i>Tragulus meminna</i>	Mouse Deer	Schedule-I
Reptiles			
10.	<i>Crocodylus palustris</i>	Mugger, Crocodile	Schedule-I
11.	<i>Varanus bengalensis</i>	Bengal Monitor Lizard	Schedule-I
12.	<i>Python molurus</i>	Python	Schedule-I
Birds			



13.	<i>Pavo cristatus</i>	Indian Peafowl	Schedule-I
14.	<i>Aquila rapax</i>	Tawny Eagle	Schedule-I
15.	<i>Gyps bengalensis</i>	White Rumped Vulture	Schedule-I
16.	<i>Nisaetus cirrhatus</i>	Crested Hawk Eagle	Schedule-I
17.	<i>Anthracoceros coronatus</i>	Pied Hornbill	Schedule-I
18.	<i>Ciconia episcopus</i>	White stork	Schedule-I
19.	<i>Neophron percnopterus</i>	White Scavenger Vulture	Schedule-I
20.	<i>Sarcogyps calvus</i>	King Vulture	Schedule-I

So far, according to our study and from the available literature, there is no endemic plant or animal species present in this area. A brief note on facts on these animals is as follows:

1.16 Status of Schedule-I Fauna present in the study area:

1.16.1. Sloth Bear (*Melursus ursinus*):

The allotted coal block area has both degraded forests, & Reserved Forest as well as cultivated area. Bear is a nocturnal animal. Generally, it remains within the forest area, but occasionally it intrudes within the village area. This is mainly due to the Mahua flower, because Mahua trees are most common around the village areas. Therefore the approach of the bear near to the village area is more during the months of Mahua flowering: the Months of March and April. The approach of the animal near the village areas in other months is extremely rare. Their density is also very low. A good study on bear has been made in the central India by Bargali *et. al.*, (2004).

Habitat: Sloth bears, in the area, occupy a wide range of habitats including forests, scrublands, and grasslands where boulders and scattered shrubs and trees provide shelter. The most common shelter is a den, a cavern-like structure generally in rocks.

Home Range: To date, there is no definitive research detailing the exact nature of the home range of the sloth bear. The size of the home range of an individual sloth bear will vary with the concentration of high energy food sources. Thus, the more concentrated the food sources, the smaller the range necessary to maintain an animal.

Habit: The sloth bear is more inclined to attack man unprovoked than almost any other animal. Sloth bears avoid areas where human disturbance is high, however, the bear raid peanut, maize, and fruit crops. Sloth bears like to escape from the heat of the day and



forage for food at night. They will start to become active as the sun starts to set. This is also the time when many insects such as termites are more active.

They are generally nocturnal, occasionally approaching near to the village area even during the daytime. Locally they prefer isolated shelters below rocks and caverns to spend their daytime hours. Occasionally, near to the village area, after consuming large amounts of mahua (*Madhuca latifolia*) flowers they remain sleeping below the tree late after sunrise.

Food: Sloth bears subsist primarily on termites, ants, and fruits. This is the only species of bear adapted specifically for myrmecophagy (ant and termite-eating). The ratio of insects to fruits in the diet varies seasonally and geographically. Most bears are opportunistic omnivores. As such, their activities are governed by the availability of food items and dietary components within their habitat. When trees are in fruit, usually during the monsoon season, sloth bears dine on mango, fig, ebony, and other fruits, and also on some flowers. However, ground dwelling ants and termites, dug out of their cement-hard nest mounds, are a year-round staple. They have a special liking for honey for which the animal can climb trees and knock down honeycombs, later collecting the sweet bounty on the forest floor. Beetles, grubs, ants, and other insects round out their diet. During food shortages, sloth bears will eat carrion. In March and April, they will eat the fallen petals of mahua trees and are partial to mangoes, sugar cane, and the pods of the Amaltas and the fruit of the jacktree. Sloth bears are extremely fond of honey. Sloth bears will also climb and shake fruit trees to obtain food. They will also eat leafy plants, sugar-rich fruits, nuts, root, tubers, berries, vegetables, honey, eggs and small vertebrates like rodents, will also eat virtually any carrion which they may discover. Seasonal availability and geographic location are the biggest factors determining the primary food sources of sloth bears.

Food items of bear are documented with the help of scat analysis and direct observation. However, the percentage occurrence of a particular food in scats may differ from actual consumption. It is possible that the most easily digestible food may be observed less in the scat while less digested food may be more.

A study on the scat of bear, in the central India has revealed following to be present in the scat and hence forming the food item of the bear. Months of their local availability has been added with each of the food item.



- i. Black ant and their egg: Available all-round the year but more during winter and summer season.
- ii. Red ant and their eggs: Available all-round the year but more during winter and summer season.
- iii. Termite and their egg: Available all-round the year.
- iv. Honeybees: Available all-round the year but more during late winter and summer season
- v. *Ficus benghalensis* (Bargad), *Ficus religiosa* (Pipal): Summer season
- vi. *Ficus virens*: Winter, Summer
- vii. *Ficus racemosa*: Winter summer
- viii. *Ficus glomerata* (Gular): Summer
- ix. *Ziziphus mauritiana* (Ber), *Ziziphus oenoplia* (beri) and *Ziziphus nummularia* (Jharberi): Winter
- x. *Aegle marmelos* (Bel): summer
- xi. *Briedelia squamosa* (Kasihi): Late winter to early summer
- xii. *Diospyros melanoxylon* (tendu): Summer
- xiii. *Buchanania lanzan* (Achar): Summer
- xiv. *Schleichera oleosa* (Kusum): Summer
- xv. *Syzygium cumini* (Jamun): Summer
- xvi. *Cassia fistula* (Amaltas) fruit: Rainy
- xvii. *Madhuca indica* (Mahua) (flower): March-April, *Madhuca indica* (fruit): June-July
- xviii. *Arachis hypogeal* (Groundnut): Late rainy season
- xix. *Zea mays* (Corn): rainy
- xx. Amarood (*Psidium guajava*): Winter
- xxi. Aam (*Mangifera indica*): Summer
- xxii. Kathal (*Artocarpus heterophyllus*): Summer
- xxiii. Bones, hair and animal tissue

Many of the non-timber forest produce, forming the food of the bear are collected like flowers and fruits of mahuwa (*Madhuca indica*) and fruits of bel (*Aegle marmelos*), char (*Buchanania lanzan*), jamun (*Syzygium cumini*), and tendu (*Diospyros melanoxylon*). Such



collection may limit their availability for bears. *Ficus* spp are not used by local people, so are readily available to the bears. Thus, *Ficus* spp play an important role by providing supply of food for most of the part of the year. This is particularly important during summer when there are no crops in fields to raise and fewer fruiting species, and bears find it difficult to dig for termite and ants.

Threats: Major threats to this species are habitat loss, poaching and conflict killings. Habitat loss is mainly due to overharvest of forest products, monoculture plantations (e.g., teak, eucalyptus), expansion of agricultural areas, human settlements, and roads. Poaching is mainly for the commercial trade in bear parts. Encounters resulting in conflicts between people and sloth bears occur mainly where the habitat has become severely degraded but is still being used by both. The only natural threats to sloth bears are tigers (*Panthera tigris*) and possibly leopards (*P. pardus*). Dhole packs may also attack sloth bears. Asian elephants are reported not to tolerate sloth bears in their vicinity. The reason for this is unknown. Bear parts are valuable commodities in the trade for Asian medicines. Incentives for killing bears are therefore high. Although, bear is protected to varying degrees by national laws, however, they can be killed to protect life or property.

Conflicts: The sloth bear is more inclined to attack man unprovoked than almost any other animal. Major man-bear conflicts result during the mahua flowering season. Persons going early to collect the flower encounter the animal, frequently, sometimes the bear remain sleeping below the tree after consuming large amount of mahua flower and is one of the major causes of man-bear conflicts. People going to the forest for the collection of wood or other forest produce encounter the bear, inadvertently resulting in conflicts.

Conservation Status: *CITES APPENDIX: I: Indian Wildlife (Protection) Act (1972) (As amended up to 2002):* Scheduled I; Part I; *Indian Red Data Book (IUCN 1994):* Not Listed; *IUCN (1998) (Proposed):* Vulnerable (National) and Data Deficient (Global); *IUCN (2002) (Proposed):* Vulnerable (Global) based on Version 2.3 1994 (IUCN, 2003). According to Alfred et al considering the nature and degree of threats and trends reported, it is strongly recommended to include sloth bear in one of the endangered categories of IUCN. They are particularly vulnerable to loss of habitat because of their reliance on lowland areas, which tend to be the places most readily used by people. Poaching and trade in sloth bears or their parts is also common in many parts of their range.



Conservation Measures:

- i. Education will help to reduce bear-human conflicts and enhance a conservation ethic among locals.
- ii. Habitat improvements (government or community-based reforestation) would be helpful in alleviating conflicts.
- iii. Planting of fruit trees more particularly the spp. of *Ficus*, because *Ficus* spp are not collected by man but form an important diet to the animal.
- iv. Promoting honey bee in the area will not only serve as food to the bear but will help also in warding off the elephant.
- v. Red ant (*Oecophylla smaragdina*) can be promoted easily to form colonies in the trees. This will serve as an important source of insect diet and may compensate for the termite.
- vi. Artificial methods to promote termite colonies should be developed.
- vii. Den like structures should be developed in the area if such structures are lacking or less in number in the area.
- viii. It is unfortunate that the conservation of Elephant and Bear go contradictory to each other.
- ix. Villagers should avoid growing crops of liking to bear like ground nut and corn etc. particularly near their den sites.
- x. Translocation of bears from isolated habitat patches to more suitable areas should be carried out.

1.16.2. Elephant (*Elephas Maximus indicus*):

Elephants have not been reported from the mining lease area in the last ten years. However, there are reports of the movement of elephants, far beyond the lease area in the district of Korba and Sarguja of Chhattisgarh State. According to the ministry of Environment, Forest & Climate Change, there are 2,865 elephants in Odisha, Jharkhand and Chhattisgarh, of which Odisha has close to 70% (1,930 elephants) followed by Jharkhand (688 elephants), Chhattisgarh (247 elephants) as of 2012. Jharkhand state is more famous for the residence as well as movement of elephants, but the boundary of the state is much farther away from the lease area. The movement of elephants also reported in the eastern part of the Renukoot Dam. But the dam is a huge barrier for the elephants to reach anywhere near to the presently



Bandha coal mine lease area. The movement of elephants and other mega wildlife in Singrauli Forest Division is shown in **Figure-1.5 i.e.**, a map showing "*Diverted wildlife corridor due to coal mines*" obtained from forest department, Singrauli Forest Division.

Habitat: Elephants are generalists but use mainly scrub forest. They can be found in the jungle, but generally on the edge where open, grassy areas are accessible. They prefer areas that combine grass, low woody plants, and forest. Elephants rarely forage in one area for more than a few days in a row. In general, food, water and shade are the three basic resources that can be expected to influence the movement of the elephant (Sukumar *et al*, 2003). Their Home range ranges from 30-600 km².

Food: Elephants eat a wide variety of species of vegetation. They are herbivore, folivore and lignivore. More than 100-130 different species of plants may be eaten. They prefer grasses, but they also consume bark, roots, leaves, wood, stems and leaves of trees, vines, shrubs, tubers, bamboo and barn, An average day's intake is 150-200kg of wet vegetation. The proportions of the different plant types in their diet vary depending upon the habitat and season. The annual diet has been found to be dominated by grass. The maximum straying distance covered by the raiding elephant has been recorded up to 5.5km.

Time activity budget of elephants: Generally, they are active almost throughout the day during rainy and winter months, but during summer months they are active only in the morning and evening hours. They become active well before dawn and start their morning activities in the vicinity of the area where they spent the night. Evening hour is the time for drinking and bathing, especially during summers. In summer season percentage of movement is more due to lack of fodder species and shrinkage of natural water sources.

Food Plants: Following is a list of plants reported as food by different workers. However, only the names of plants, local to the area, have been taken and the local names have been changed. Part of the plant eaten may be different for the different species.

Threats: The pre-eminent threats to the Asian elephant today are habitat loss, degradation, agriculture and farming, grazing, mining, human interference, trade, pollution, hunting for ivory, insurgency, corridor loss, anthropogenic pressures on the habitat, man-elephant conflict, forest fires, illegal captures of live animals etc. Poisoning and disease are some other threats to the animal.



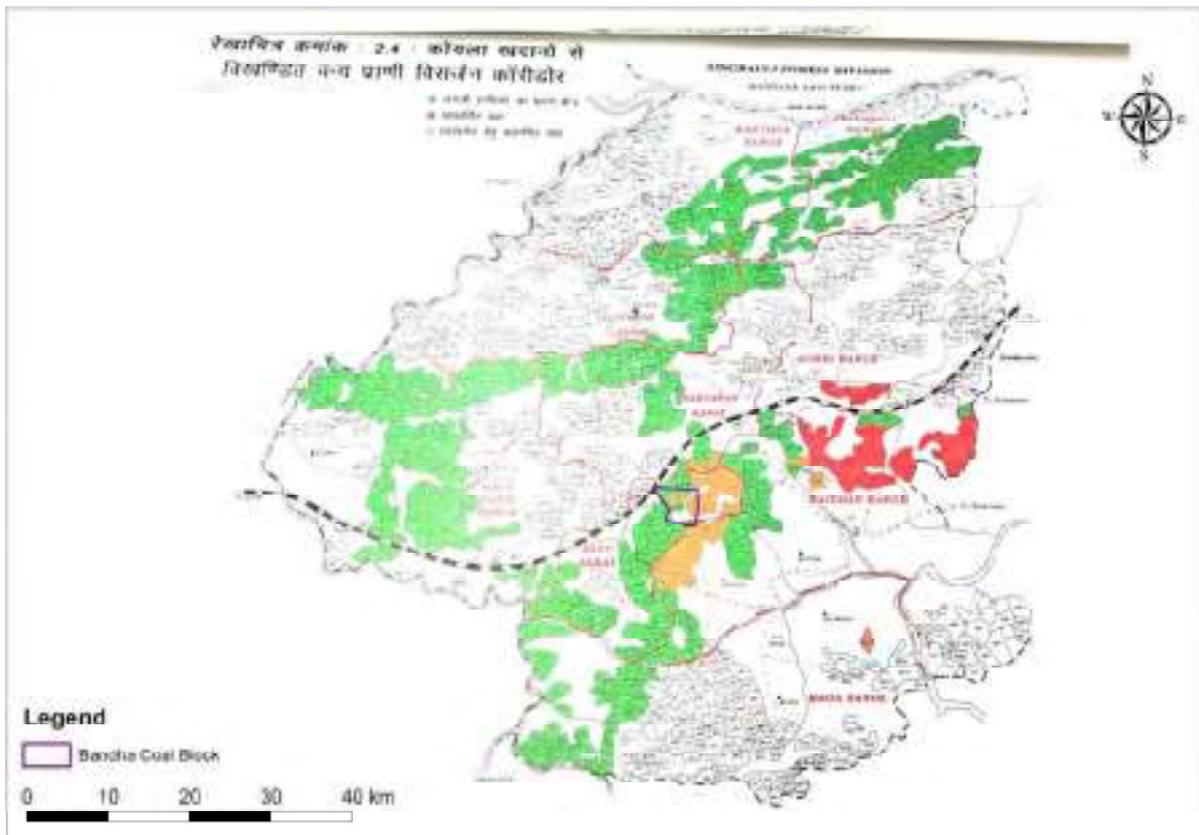


Figure-1.5: Diverted wildlife corridor due to coal mines



Table-1.16: List of Food Plants for Elephant

Sr. No.	Botanical Name	Local Name
1	<i>Acacia catechu</i>	Khair
2	<i>Acacia nilotica</i>	Babool
3	<i>Aegle marmelos</i>	Bel
4	<i>Albizzia lebbek</i>	Kala siris
5	<i>Bambusa arundinacea</i>	Bans
6	<i>Albizzia procera</i>	Safed siris
7	<i>Bauhinia variegata</i>	Kachnar
8	<i>Bauhinia vahlii</i>	Mahul
9	<i>Bauhinia malabarica</i>	Khatua
10	<i>Bombax ceiba</i>	Semal
11	<i>Brachiaria sp.</i>	Ghas
12	<i>Bridelia retusa</i>	Kasai
13	<i>Careya arborea</i>	Kumhi
14	<i>Cordia myxa</i>	Lassora
15	<i>Cymbopogon flexuosus</i>	Ghas
16	<i>Cynodon dactylon</i>	Doob Grass
17	<i>Dalbergia sissoo</i>	Shisham
18	<i>Dendrocalamus strictus</i>	Bans / Bamboo
19	<i>Desmostachya bipinnata</i>	Urai/Khus
20	<i>Eleusine sp.</i>	Ghas
21	<i>Emblica officinalis</i>	Amla
22	<i>Eucalyptus spp</i>	Nilgiri
23	<i>Eulaliopsis binata</i>	Bagai Ghas
24	<i>Feronia elephantum</i>	Kaith
25	<i>Ficus bengalensis</i>	Bargad/Bar
26	<i>Ficus glomerata</i>	Dumar/Gular
27	<i>Ficus religiosa</i>	Pipal
28	<i>Ficus rumphii</i>	Duranga-hesa
29	<i>Ficus infectoria</i>	Pakar
30	<i>Flacourtia indica</i>	Kandai
31	<i>Garuga pinnata</i>	Kekad
32	<i>Grewia elastica</i>	Dhaman
33	<i>Helicteres isora</i>	Ainthe
34	<i>Holarrhena antidysenterica</i>	Korea
35	<i>Ipomoea spp.</i>	Karmata
36	<i>Imperata arundinacea</i>	Ulu
37	<i>Kydia calycina</i>	Baranga/Pula
38	<i>Lagerstroemia parviflora</i>	Senha/Sidha
39	<i>Limonia acidissima</i>	Kaith
40	<i>Mallotus philippinensis</i>	Sinduri/Rohini
41	<i>Mimosa pudica</i>	Lajwanti
42	<i>Mitragyna parvifolia</i>	Mudhi



Sr. No.	Botanical Name	Local Name
43	<i>Musa paradisiaca</i>	Banana
44	<i>Neyraudia arundinacea</i>	Bichhloo
45	<i>Oryza sativa</i>	Dhan
46	<i>Ougeinia oojeinensis</i>	Tinsa
47	<i>Phoenix humilis</i>	Buta Chhind
48	<i>Pithecellobium dulce</i>	Jangal Jalebi
49	<i>Randia dumetorium</i>	Mainphal
50	<i>Saccharum munja</i>	Kandi-khar
51	<i>Saccharum officinarum</i>	Ganna
52	<i>Saccharum spontaneum</i>	Kans
53	<i>Sansevieria sp.</i>	Sisal
54	<i>Schleichera oleosa</i>	Kosam/Kusum
55	<i>Shorea robusta</i>	Sarai/Sal
56	<i>Syzygium cumini</i>	Jamun
57	<i>Tamarindus indica</i>	Aml / Imli
58	<i>Terminalia tomentosa</i>	Saja
59	<i>Tectona grandis</i>	Sagaun / Teak
60	<i>Tinospora cordifolia</i>	Giloe / Gurch
61	<i>Thysanolaena agrostis</i>	Hathi ghas / Pirlu
62	<i>Zizyphus mauritiana</i>	Bhander
63	<i>Zizyphus xylopyra</i>	Ghont

Conservation Issues:

- i. Raid in the village and agricultural field for food leads to man-animal conflicts.
- ii. Loss of habitat for food and water.
- iii. Particular attention should be paid to identifying ways to reduce human conflict by promoting methods that ensure to keep the Elephant away from humans.
- iv. Awareness programme to reduce conflicts.

Elephant Corridor: There is no notified elephant corridor within the 15 km radius of the project site. However, as reported by the Forest Divisions, elephants move from one important forest block to another within their habitat. Revenue forestlands, Demarcated Protected Forests (DPF), and village forest areas interlink these isolated forest blocks. They form the movement track for the elephants between the Reserve Forest blocks.

The central Indian elephant habitats are one of the most fragmented and degraded because of encroachment, shifting cultivation and mining activities.



1.16.3. Indian Pangolin (*Manis crassicaudata*):

Manis Crassicaudata are insectivorous mammals understood to occur in various types of tropical forests as well as open land, grasslands and degraded habitats, including in close proximity to villages. It is a medium-sized mammal, with a streamline elongated body and tail covered with large overlapping scales rather than fur. Indian Pangolin is widely distributed in India, except the arid region, high Himalayas and the North-East. It can be found at elevations up to 2500m. The species also occurs in Bangladesh, Pakistan, Nepal and Sri Lanka.

Habitat: *Manis crassicaudata* occupies a variety of habitats. They have been found in tropical rainforests, subtropical thorn forests, plains and the lower slopes of mountains. The Indian pangolin is solitary, mostly nocturnal, and terrestrial.

Ecology and Behavior: These pangolins dig their own burrows in the ground, at depths of 1.5-6 m; these are frequently under large rocks and the entrance is often hidden with soil. When in danger, they roll up into balls, with their large tails pressed tightly against their face and belly to help protect them. The longevity of this animal in captivity can exceed 19 years. These pangolins are not often observed in the wild due to their solitary, secretive, and nocturnal nature. A loud emission of a hissing sound has been reported when they are frightened or angry.

Food: The Indian pangolin is almost entirely insectivorous and more specifically a myrmecophage (ant/termite specialist). Its diet includes beetles, cockroaches, termites, and possibly worms, but mainly ants and termites. It feeds on the eggs, larvae, and adults of its prey, but eggs are the preferred choice. The Indian pangolin is nocturnal and uses its well-developed sense of smell to locate ant nests or termite mounds and other food sources. Pangolins tear apart and dig into mounds by using the three center claws on their forefeet, throwing loose soil backwards with their hind feet. When feeding, the rostral part of the pangolin's tongue is quickly inserted and withdrawn to capture prey. This movement is also used for drinking.

Conservation Status: The species is therefore listed as endangered in the IUCN Red List of Threatened Species; under the Schedule I of the Wildlife (Protection) Act 1972 of India and included in Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).



1.16.4. Leopard (*Panthera pardus*):

Habitat: Indian leopard has high capability to adopt any type of habitat where it can get sufficient food and covers. Leopards avoid overlapping their territory or the home range with the tigers. Therefore, they try to occupy the fringe areas of the forests, as well as dare more to enter the human inhabited areas.

Behavior: leopards are highly territorial. Leopards are not only the widest range of all Big Cats but are actually one of the most adaptable and are found in a variety of different habitats. The Leopard can be found inhabiting numerous different areas providing that there is a good source of cover and an ample supply of food including tropical rainforests, tree-lined savannah, barren deserts and mountain highlands.

Food Habits: The diet of these big cats is surprisingly varied which includes wildebeest, impalas, reedbucks, Thomson's gazelles, jackals, monkeys, fish and storks. However, at times they seem to show a preference for canines, even attempting to snatch dogs right from the feet of their masters. They can also eat fish and domestic stock such as goats and cows. They will even eat carrion.

Status: The species has been assigned almost all the categories of IUCN Red List Categories including: Near threatened, Threatened, Endangered, Critically endangered to Vulnerable, by different workers and agencies. However, these categories have been assigned mostly on a regional basis. On a global basis the species has been assigned Lower Risk Status. The species has been included in Schedule I in The Wildlife (Protection) Act, 1972 of our country.

Conservation Status: *CITES APPENDIX: I; Indian wildlife (Protection) Act (1972) (As amended up to 2002); Scheduled-1; Part-1; Indian Red Data Book (IUCN, 1994); Vulnerable; (IUCN 1998) (Proposed); Vulnerable (National) and Data Deficient (Global).*

Man-leopard Conflicts: Major conflicts arise when leopards start preying on livestock. These conflicts have increased in recent years due to population growth among humans. The conflict becomes more severe when some leopards become man-eaters. They can prey on children and even enter homes at night to attack humans.

Threats: The Indian leopard (*Panthera pardus fusca*) is facing the crisis of adaptation. The species could soon qualify for Vulnerable under criterion A4 (30% decline over a period of 30 years = three generations, including both past and future). Despite being the most



widespread cat, the Indian leopard faces several types of threat. The animal shares its habitat with other animals, which include tigers, bears, wolves, Asian elephants, hyenas, and wild dogs. These animals may kill leopard cubs if given a chance. Apart from its natural enemies, the leopard's main threat is people. For years, it has been threatened, due to loss of habitat and poaching. A rapidly increasing threat to Leopards is the poisoning of carcasses targeting carnivores as a form of retaliation as well as a means of predator control. An estimated 50% of the population lives outside Protected Areas and so it is vulnerable to habitat destruction.

Conservation: Capture and translocation to protected areas has been practiced more as a means of conservation. However, investigations have shown that the animal is highly territorial. Shifting causes inter and intra specific fighting to establish a territory in the translocated area. They are so particular about their territory that they may make every effort to reach back to their original territory. However, Leopards are somewhat tolerant of habitat conversion, and may persist close to large human populations provided they have suitable cover and prey. The MoEF&CC has issued guidelines:

Guidelines for Dealing with Man-leopard Conflict, Press Note, Ministry of Environment and Forests, Govt. of India, moef.nic.in/downloads/public-in-format. Accessed on, 01-08- 2011. The guidelines suggest a three-pronged strategy to deal with man-leopard conflict as a means to their conservation:

- i. Awareness generation among local communities, media and officials of various departments.
- ii. Establish trained teams at two levels: the primary response team and the emergency response team, and
- iii. Use of the latest technology and scientific know-how to improve efficacy of capture, handling, care and translocation of the animal.

1.16.5. Indian wolf (*Canis lupus callipes*):

The Indian wolf (*Canis lupus pallipes*) is a subspecies of grey wolf that ranges from Israel to the Indian Subcontinent. It is intermediate in size between the Tibetan and Arabian wolf and lacks the former's luxuriant winter coat. The Indian wolf is similar in structure to the



European wolf, but is smaller, more slightly built, and has shorter fur with little to no under fur.

Habitat: Its habits are similar to those of other grey wolf subspecies, though the Indian wolf generally lives in smaller packs rarely exceeding 6-8 individuals, and are relatively less vocal, having rarely been known to howl. It tends to breed from mid-October to late December, and whelp in holes or ravines. It typically preys on antelopes, rodents, and hares.

Ecology and Behavior: The Indian wolf, although somewhat gregarious, is not known to associate in large packs. It is also rather a silent animal, but sometimes, it barks like a pariah dog. It is rarely, if ever, heard to howl. Indian wolves' prey on all mammals or birds they can kill, but especially on sheep, goats, and antelopes. They course and run down hares and foxes, and occasionally attack cattle. They not infrequently kill dogs.

Food: Wolves are carnivores (meat eaters) but they will eat other foods as well. Their diet ranges from big game, such as elk and moose, to earthworms, berries and grasshoppers. To avoid using too much energy catching their food, wolves' prey on weaker members of a herd, such as old, young or sick animals. In summer, when the herds migrate, wolves eat mice, birds and even fish. Wolves eat their food very quickly, probably to protect it from being stolen, and to decrease the chance of attack from other predators. They eat the best parts first, and come back later for the remainder, as they can't afford to be wasteful. They will hide food in the snow, or icy soil, which helps to preserve it, and protect it from scavengers. Wolves can eat every 5-6 hours when there is plenty of food available, or they can fast and live on scraps for 2 weeks when there is less food around.

Threats: Despite the highest level of protection accorded to the wolves in India, hunting remains rampant and is a major cause of concern. Killing of adult wolves and pups by local shepherders is common throughout the range of the wolf. Conflict with humans for livestock depredation, depletion of prey species (like blackbuck, hare) due to livestock, exaggerated public fear regarding their danger, and fragmented habitats that are too small for populations with long-term viability are threatening their survival today.

Conservation Status: The Indian Wolf (*Canis lupus*), is an endangered species in Schedule I of Indian wildlife according to the Wildlife (Protection) Act, 1972. IUCN Red



List, Least Concern species (IUCN 3.1). It is also in appendix 1 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

1.16.6. Honey Badger (*Mellivora capensis*):

The honey badger (*Mellivora capensis*), also called ratel, is an interesting animal as there are many myths surrounding its nature and behavior. It is well known as a fearless creature that can be quite aggressive when threatened.

Species Identification: Honey badgers stand around 250mm tall at their shoulders and weigh approximately 12kg. Their fur is coarse, with a strip of gray or brown hair running laterally down their dorsal side running from the base of the skull to the base of the tail. They have a stocky build, with short legs and long claws. Honey badgers are primarily terrestrial but possess the ability to climb. They can run quickly and for extended periods of time when chasing prey.

Breeding: Reproduction is considered asynchronous with an estimated gestation period of 50-70 days. Most commonly only one cub was produced, rarely two. Cubs stay in the den until three months of age, and then they begin foraging with their mother. Cubs are almost completely hairless for 3-5 weeks. They do not become independent until 12-16 months old. Parental care is provided by the female while the male completes his involvement after copulation.

Habitat: Honey badger habitat is described as open woodlands, desert, high mountains and coastal shrubs. In Assam, India badgers have been observed to inhabit scrub jungle and tall elephant grass. Honey badgers burrow mustelids; because of this they need specific habitat to create their burrows. In India, honey badger burrows are found on the banks of streams, rock cavities, and thick brush and in the spaces naturally formed by tree roots.

Diet: Their diet consists of scorpions, *Hottentotta rugiscutis*, *Heterometrus swammerdami*, *Hottentotta tamulus*, and *Lychas tricarinatus*; small rodents: lesser bandicoot rat (*Bandicota bengalensis*), Indian bush rat (*Golunda ellioti*), soft-furred rat (*Millardia meltada*), little Indian field mouse (*Mus booduga*), house mouse (*Mus musculus*), Sahyadris forest rat (*Rattus satarae*), Nilgiri long-tailed tree mouse (*Vandeleuria nilagirica*), jungle palm squirrel (*Funambulus tristriatus*), Malabar spiny dormouse (*Platacanthomys lasiurus*), Etruscan shrew (*Suncus etruscus*), and the Asian house shrew (*Suncus murinus*); and



herpetofauna, Brook's gecko (*Hemidactylus brookii*), bark gecko (*Hemidactylus leschenaultia*), brahminy skink (*Mabuya carinata*), Indian rat snake (*Ptyas mucosa*), and the banded racer (*Argyrogena fasciolatus*).

Conservation Status: The Indian Wildlife (Protection) Act of 1972 (No. 53 of 1972), gives the honey badger an extremely high level of protection in India as a Schedule 1 organism.

1.16.7. Four Horned Antelope (*Tetracerus quadricornis*):

The four horned antelope (*Tetracerus quadricornis*) also known as "Chausingha or Chauka" is endemic to the Indian subcontinent. According to IUCN redlist this is vulnerable species with decreasing population trend. The Four-horned Antelope has a wide distribution, occurring in scattered populations from the Himalayan foothills to peninsular India.

The four horned antelope is non-migratory, probably a sedentary and territorial species occupying restricted home ranges. It is generally solitary but sometimes can be seen in a small group of three to five animals. It is elusive and difficult to observe in the wild. It has peculiar anti-predatory behaviour where it prefers to hide than run, making it obscure. It is herbivorous with a ruminal digestive system.

Habitat: The four-horned antelope inhabits areas with significant cover from grasses or heavy undergrowth, and close to water bodies. It generally keeps away from human-inhabited areas. Though they are habitat generalists, four-horned antelopes mostly occur in open, dry, deciduous forests in hilly terrain.

Conservation Status: The four-horned antelope is threatened by the loss of its natural habitat due to agricultural expansion and mining activities in forest areas. Moreover, the unusual four-horned skull and the horns have been a popular target for trophy hunters. In India, the species is protected under Schedule I the Wildlife Protection Act of 1972 and the Nepalese population is listed in CITES Appendix III. The four-horned antelope is classified as Vulnerable by the International Union for the Conservation of Nature and Natural Resources (IUCN).



1.16.8. Chinkara (*Gazella bennettii*):

Indian gazelle or Chinkara (*Gazella bennettii*), a globally threatened ungulate, once widely distributed antelope in India, now facing threat due to increasing human population, mechanised agriculture, mining activities and hunting by locals.

Habitat: Chinkara live in arid plains and hills, deserts, dry scrub and light forests. They inhabit more than 80 protected areas in India. Indian gazelles can thrive in a variety of habitats. They have been observed in dry deciduous forests, open woodlands, and dry areas such as sand dunes, semi-arid deserts, and arid valleys that have an annual rainfall of 150 to 750 mm. Indian gazelles are facultative drinkers and can withstand relatively long intervals between visits to water points by conserving metabolic water and taking advantage of water found in vegetation.

FOOD HABITS: Indian gazelles are better adapted to browsing than grazing, but they can consume legumes and grasses in large quantities. Their diet typically consists of grasses, various leaves, crops and fruits such as pumpkins and melons. A majority of their metabolic water intake comes from the vegetation they consume. The brush and trees that make up their diet are found in mountain ranges and deciduous forests, while grasses and other herbaceous plants are found in valleys and agricultural fields.

CONSERVATION STATUS: *Gazella bennettii* is considered a species of least concern by the International Union for Conservation of Nature (IUCN). Indian gazelles were considered threatened in the 1950's due to habitat loss and anthropogenic activities such as hunting and poaching. Agricultural practices along with the general increase in human population has led to extirpation in certain areas.

In 1994 the species was considered vulnerable, and in 1996 *Gazella bennettii* was considered a species of lower risk. The species has since recovered and is now considered a species of least concern by the IUCN.

Gazella bennettii was considered a Schedule 1 species under the Wildlife (Protection) Act of India in 1972. Indian law fully protects Indian gazelles, reserving 80% of India as protected land, 5% of Pakistan and 9% of Iran.



1.16.9. Mouse Deer (*Tragulus meminna*):

The Indian spotted chevrotain (*Tragulus meminna*) is a species of even-toed ungulate in the family Tragulidae found in India and possibly Nepal. It has a body length of 23 in (57.5 cm), with a tail length of 1 in (2.5 cm); it weighs around 7 lb (3 kg). It lives in rainforests and is nocturnal.

Habitat: Mousedeer (tragulids) in general occupy a range of habitats from evergreen forests to plantations. They are an ancient group of frugivorous ungulates, small-bodied and active both day and night. *Moschiola meminna* are only active at night, and are often found in evergreen, semi-evergreen and deciduous forests, as well as in grassland and commercial plantations.

Food Habits: *T. meminna* are primarily frugivores, consuming easily digestible items which provide relatively high protein and less fibrous materials. Indian chevrotains usually browse the understory vegetation and eat mainly fallen fruits. Other food items include young leaves, shrubs, shoots, and sometimes animal materials found on the forest floor.

T. meminna are ruminants with a three-chambered simple stomach. The selection of a very digestible diet allows rapid fermentation and swift passage through the gut, which in turn aids in rapid and efficient digestion.

Conservation Status: *Tragulus meminna* populations are listed as ‘Least Concern’ by IUCN. The main threat for the species is from hunting by local communities, Industrial/Mining Activities and forest fire as they are sensitive to habitat loss, alteration and degradation.

1.16.10. Bengal Monitor Lizard (*Varanus bengalensis*):

Habit: They are often found in agricultural areas. Bengal monitors shelter in burrows that they dig or crevices in rocks and abandoned termite mounds. It is mostly diurnal in habit.

Habitat: It is found in a wide range of habitats, *viz.* forest, riverbanks, by the side of nullah, and agricultural land. It occupies burrows, dense vegetation, hollows of trees, rock cracks and crevices.

Behavior: Mainly ground dweller but is a very good climber as well. Bengal Monitors are usually solitary and usually found on the ground although the young are often seen on trees. They shelter and spend nights in burrows or crevices in rocks, make use also of



abandoned termite mounds. In the night their body temperature drops below ambient. In the morning they raise their body temperatures by basking before commencing activity and for this reason they are rarely active early in the morning and most active in the afternoons when temperatures are highest.

Food: Their normal prey consists of beetles, grubs, orthopterans, scorpions, crabs, snails, ants and other invertebrates. Vertebrate prey is comparatively rare and includes frogs, fish, other lizards, snakes birds and their eggs and rodents. They sometimes capture roosting bats.

Threat: Monitor lizards are hunted for skin and their body fat. Its eggs are considered a delicacy and the entire animal is also eaten. Unani, the Greco-Arabian system of medicine, recommends the use of various body parts of monitors to cure numerous ailments. The population of the Common Indian Monitor, *Varanus bengalensis* has alarmingly dwindled throughout the Indian sub-continent mainly due to excessive exploitation of the adults for their commercially valuable skins, as food and in traditional medicines. Habitat loss due to large-scale deforestation, urbanization, dams and hydroelectricity projects and other biotic factors are also responsible for the population decline of the species.

Conservation Status: Status: Not Listed (IUCN 2000); Endangered (ESA). Schedule I Indian Wildlife (Conservation) Act, 1972.

1.16.11. Indian Python (*Python molurus*):

Habitat: It is a non-poisonous, lethargic and slow-moving snake, exhibiting little if any timidity and rarely rousing itself seriously to escape, even when attacked. Diurnal and/or nocturnal habit depends upon the degree of disturbance from man in their environment. The snake hibernates in cold season, in any convenient retreat. There are very few records of attacks on human beings are also there in the area.

Food: Feeds mammals, birds and reptiles, but prefers mammals. The stomach content has shown frogs, toads, monitor lizard, wild duck, peafowl, poultry, rat, hare, porcupine, langur, jackal, mousedeer, and hogdeer, chital, sambar fawn, barking deer, chinkara and leopard. Thus has a very wide range of food items.

Threats: It is killed for flesh and skin. However, in the presently applied lease area it is not eaten. Killing for skin is also not reported in the area. However, it is killed only because it is a snake.



Conservation: The snake, although occurs in the area but is rare. Reports of its conflicts with human beings are extremely rare. Public awareness is the most important method for its conservation.

Conservation Status: This species is classified as Lower Risk/Near Threatened (LR/NT) on the IUCN Red List of Threatened Species (v2.3, 1994). This means that it has been evaluated but does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. However, it is considered Near Threatened (NT), meaning that it does not qualify for Conservation Dependent, but is close to qualifying for Vulnerable. Year assessed: 1996.

1.16.12. MUGGER (*Crocodylus palustris*):

Habitat: The mugger crocodile occurs in southern Iran, Pakistan, Nepal, India and Sri Lanka. It inhabits freshwater lakes, rivers and marshes, and prefers slow-moving, shallow water bodies. It is also known to thrive in artificial reservoirs and irrigation canals.

Food: The mugger crocodile preys on fish, snakes, turtles, birds and mammals including monkeys, squirrels, rodents, otters and dogs. It also scavenges on dead animals. During dry seasons, muggers walk many kilometers over land in search of water and prey. Hatchlings feed mainly on insects such as beetles, but also on crabs and shrimp and on vertebrates later on. Sub adult and adult muggers favour fish, but also prey on small to medium-sized ungulates up to the size of chital deer (*Axis axis*).

Threats: The mugger crocodile is threatened by habitat destruction because of conversion of natural habitats for agricultural and industrial use. As humans encroach into their habitat the incidents of conflict increase. Muggers are entangled in fishing equipment and drown and are killed in areas where fishermen perceive them as competition.

Conservation: The mugger crocodile is listed in CITES Appendix I, hence export of wild-caught specimens is banned. The mugger is protected under Indian law vide the Wildlife Protection Act, 1972 of India, which lists the mugger in Schedule I (as serial 1D of Part II Amphibians and Reptiles).

1.16.13. Conservation plan for Schedule-I Bird Species:

Birds, occupying higher trophic levels in the ecosystems, respond quickly to the changes in the habitats and therefore serve as one of the best indicators for evaluating the ecological status and functioning of ecosystems of the area. Therefore, we created baseline data on



birds by systematically collecting data on occurrence in the core and buffer areas separately. For creating baseline data on birds, we carried out bird surveys in different habitats as differential habitat preferences are seen in birds. Based on our extensive field visits, literature survey, and consultation local people, we found 8 bird species of high conservation significance as they belong to Schedule-I of Indian Wildlife Protection Act 1972 (**Table-1.17**).

Table-1.17 List of Scheduled Bird species from study area

Birds			
1.	<i>Pavo cristatus</i>	Indian Peafowl	Schedule-I
2.	<i>Aquila rapax</i>	Tawny Eagle	Schedule-I
3.	<i>Gyps bengalensis</i>	White Rumped Vulture	Schedule-I
4.	<i>Nisaetus cirrhatus</i>	Crested Hawk Eagle	Schedule-I
5.	<i>Anthracoceros coronatus</i>	Pied Hornbill	Schedule-I
6.	<i>Ciconia episcopus</i>	White stork	Schedule-I
7.	<i>Neophron percnopterus</i>	White Scavenger Vulture	Schedule-I
8.	<i>Sarcogyps calvus</i>	King Vulture	Schedule-I

Occurrences of birds in the study area are mainly due to the overall ecological condition which provides them suitable habitats where they obtain their food and safety for their breeding or wintering in the region. Therefore, any changes or degradation of air, soil and water quality would lead to degradation of vegetation and habitats of birds. Increased noise levels and disturbance levels would result in their displacement from the core area and its immediate surroundings. Direct disturbance by the presence of people, vehicles, their noise, vibrations, lights etc. can potentially displace most of the birds" species from core area.

Therefore, it is recommended that project proponent shall take utmost care in controlling dust, fugitive emissions and put in place all pollution control measures during construction phase which would not result in degradation of air, soil, water qualities that affect the surrounding forest areas and vegetation. It is also recommended that workers should be strictly instructed so that they don't engage in poaching birds. It is further recommended that project proponent should monitor the ecological status of the study area including species of birds and their habitats as part of their periodic comprehensive biodiversity monitoring programme.



1.17 Movement of Mega Wildlife:

According to the book “**Right of Passage**”, **Elephant Corridors of India-2017** the elephant habitats in central India extend over 21,000 sq km in the states of Odisha, Jharkhand, Chhattisgarh and southern West Bengal, at times extending to Madhya Pradesh and Bihar, and hold a population of about 3128 elephants (*MoEFCC, 2017*). There have been recent reports of elephants straying into Madhya Pradesh’s eastern districts of Singrauli and Anuppur from bordering northern Chhattisgarh, causing concern among the locals and forest officials. The deterioration in habitat quality has forced elephants to undertake long-range disoriented movements by using smaller forest patches to move to larger forest areas. This is one of the major causes for the migration of elephants into Chhattisgarh and at times extending to Madhya Pradesh.

The forest area of the project site of the concerned Forest Division is not a part of the already identified 14 corridors in India (*The Right of Passage, Wildlife Trust of India*). The area does not have any resident population but occasional visitors. Apart from this, no other scientific study has been made to identify the corridor of wild animals like elephants in the project area. However, the official records showing the payment of compensation for human life and crop damage and site-specific survey confirm the elephants' movement in the proposed site's buffer area.

Elephant is the flagship species of this area and the only mega herbivore (wildlife) with long ranging movement behaviour, present in the Singrauli Forest Division. Elephants have not been reported from the mining lease area as well as from the impact area. However, there are reports of the movement of elephants, far beyond the lease area in the district of Korba and Sarguja of Chhattisgarh State. Elephants follow streams and move in valleys and unless hard pressed try to avoid hilly terrain to conserve energy. This behaviour exposes them close to human habitation. The movement of elephants also reported in the eastern part of the Renukoot Dam. The movement of mega wildlife in Singrauli Forest Division is shown in **Figure 1.5**.

1.18 Man-Elephant/Animal Conflict:

Man, animal conflict refers to negative interaction between wild animals and human beings such as crop raiding, human death and injury caused by wildlife and in retaliation (or



otherwise) human beings killing the animals. Wildlife conservation efforts raise conflict issues not only through crop raising, cattle lifting, property and life damage but also, generally when conservation comes into conflict with development. Both wildlife and people are in conflict and the goal is to enable coexistence and sharing of resources on a sustainable scale. This is best achieved by addressing both sides of the equation.

The bear population is quite high in this area and the surrounding forests. A peculiar phenomenon is prevalent in this area. The sloth bear usually remains inside the forest during the winter months but comes out of its cover in search of Mahua flowers which is a delicacy for it. Normally in the winter mornings the environment remains full of fog and the bear has long fur on its eyebrows, which obstructs its vision. On the other hand, the villagers are also engaged in Mahua collection during the early hours and are usually also not able to see the approaching Bear early enough due to fog. As a result, the Bear and the Mahua collectors invariably find themselves face to face and then the Bear usually attacks the Mahua collectors on instinct.

The elephant is one of the major Schedule –I species. There is no resident population, but due to the size and nature of crop raiding by elephants, special care and planning are needed to mitigate the impact. Besides, the fertile land and properties are getting destroyed by the infringement of the elephants, leading the state to a financial loss. In order to drive away the elephants, the local people are seen taking extreme steps that cause death to the animals or human beings. Mitigation measures, training, and awareness among residents are needed to reduce the impact of man and animal conflict.

Of late, another phenomenon has also troubled the local populace. Elephant herds have been reported to have occasionally crossed the area while moving from the Odisha Forests to the Elephant habitats down south. The local populaces have had their houses brought down and suffered a lot on account of these elephant movements. The Madhya Pradesh Government has however taken a commendable stand on this account. While the aggrieved villagers have been provided adequate compensation, the Elephant movement has not been discouraged and the wildlife wing of the Madhya Pradesh Forest department is actually working on a very elaborate plan in this direction.



1.19 Poaching / Killing of animals:

While forest fires are usually unintentional and are inadvertently due to carelessness, poaching is intentional and a crime of a very serious nature. Poaching is usually organized crime and there are tiers of different level of criminals involved in the racket. At the lowest level are usually the local people. There are certain tribes that are known to have been poachers for generations. They are usually the least benefited in terms of money that serious poaching can accrue but without them usually poaching is not possible. The reason is simple, it's they who know the jungles well and its they who can walk long distances inside the forest and its they who use ingenious and usually difficult to trace methods like electrocution (by using a connection from overhead H.T. electrical transmission lines), poisoning (sometimes even large poisoning of water sources which shrink during the pinch period and a large number of animals can come to drink water from one water hole and get poisoned) and traps. The traps are sometimes very ingenious and entirely homemade using small iron pieces and iron springs. These are usually so smartly hidden that they can be completely overlooked even by the people. The forest staff may have a really tough time weeding out such traps. Apart from the local people there is a whole chain that goes upright to the international level. This well-oiled system makes wildlife crimes very lucrative and international data suggest that wildlife related crimes are only third after arms drugs related crimes in terms of money exchanged (WPSI-Wildlife Protection Society of Indian publication). Nevertheless, poaching can be thwarted, and the poachers brought to book but there is no short cut. It requires 24 hr. monitoring of forest areas, particularly those that have relatively high biodiversity and where the number of animals is high.

1.20 Working Plan Prescriptions:

The present Working Plan of Singrauli Forest Division, valid from 2009-10 to 2018-19 consists of nine Working Circles as detailed below: -

- ▶ Selection cum Improvement Management Working Circle
- ▶ Improvement Working Circle
- ▶ Protection Management Working Circle
- ▶ Soil and Water Conservation Working Circle
- ▶ Rehabilitation Working Circle



- ▶ Plantation Working Circle
- ▶ Plantation Maintenance overlapping Working Circle
- ▶ Rehabilitation of degraded Bamboo Forest Working Circle
- ▶ Wildlife Working Circle

The demand of the day is to manage the forest by active participation of local people (Joint Forest Management) on a sharing basis. In the end for any felling takes place the stakeholders will have a 50% share. Only in Protection Management Working Circle this procedure has not been adopted as no felling is permitted. Therefore, thrust has been more on eco-development through strategies aimed at uplifting the local economy and also at increasing the general awareness of the local community about the importance of biodiversity and wildlife. When we plan for conservation of Wildlife in a forest area (and its neighbouring Impact Area) that has to be diverted for a non-forest activity like coal mining, the task becomes rather peculiar because the question of usufruct sharing in case of Participatory Forest Management can only be addressed by the forest department and can certainly not go beyond the provisions of the Working Plans in force. What can be done though is a whole-hearted effort towards eco-development through uplifting of the local economy and also through enhancing the awareness level of the local community about the need of biodiversity and wildlife conservation. The Conservation Plan would then focus on awareness building of local people and also uplifting of local economy through capacity building and monetary support. While previously the whole emphasis used to be on exploitation of forests produce for economic gain, now a day the emphasis is more on protection, improvement and rehabilitation of the forests by treating the forests more as an ecosystem rather than as a timber factory. For our case we would discuss the Biodiversity and Wildlife Conservation Management Circle in some detail in the paragraphs below.

1.21 Bio-diversity Conservation Management Circle:

The main objectives of this Biodiversity Conservation Management Circle as listed in the two Working Plans are outlined briefly below:

- ▶ Conservation and propagation of Biodiversity
- ▶ Increase density of Forest Crop
- ▶ Soil & water conservation
- ▶ Improve habitat for wildlife



- ▶ Conservation and propagation of endangered species
- ▶ Provide special protection to plants of medicinal value.
- ▶ Involve fringe villagers for active cooperation in eco-development.

To meet these objectives the following treatments are proposed in general:

- ▶ Wildlife Habitat Improvement by Enrichment Plantation which will include species suitable for wildlife in general and Elephant in particular.
- ▶ Priority would be given to engineering structures (Soil Moisture Conservation measures) for preventing soil erosion.
- ▶ Special Fire protection measures including fire lines and use of fire blowers.
- ▶ Provisions for salt licks and water holes.
- ▶ Creation of Grass lands and meadows especially for herbivores.
- ▶ Studies on elephant habitat utilization by engaging Research Scholars.
- ▶ Bio-diversity assessment and monitoring by engaging Scientist and Research assistant.
- ▶ To create a Bio-diversity Park for nature lovers and students having Biology as a subject in their reading to identify the species, their phenology and area of distribution.

1.22 Wildlife Conservation:

Objectives of Wildlife Management:

- To improve the habitat of wildlife by reducing biotic interference caused in the form of illicit felling, poaching, grazing, shifting cultivation, encroachment, over exploitation of timber and bamboo and forest fire etc.
- Food, water, cover and space are the most important components of wildlife habitats.
- To conserve and preserve the diversity and integrity of flora and fauna within natural ecosystem.
- To carry out extensive as well as intensive research concerning the improvement and development of wild habitat and wildlife.
- To educate the local inhabitants about the importance of wild fauna in the forest ecosystem.



- To conserve the existing prime wildlife habitats like the areas which are frequently visited by wild animals and birds for shelter, food, water, cover, etc. By providing adequate protection and by taking various developmental measures.
- Food is an essential prerequisite for wildlife habitat. Food availability in a habitat change with the season. Herbivores depend on plant materials for their sustenance and normally selective feeders as their food preference are related to palatability.

Herbivores prefer the leaves, barks, twigs, flowers, fruits and seeds of their selective species. Wild elephants feed on barks and leaves of especially of Moraceae family. Deer, monkey, langur, hares feed on wild fruits. Among the plant materials, grass constitutes a major portion of the herbivores' foods.

Dead trees (snags) and stag headed trees are to be preserved for avi-fauna (wood picker) and reptiles like snakes and lizards to live and breed. Similarly rookeries are to be preserved for mongoose to live and breed. Earthen mounts inside the forests are to be retained for bear and ratel that mainly depend on white ants.

Wildlife are basically divided into two broad groups i.e. Carnivores and herbivores. Carnivores prey on herbivores. The population growth of herbivores will increase the population of carnivores. Therefore, protection of forests is required. Besides, anti-depredation squad has to be deployed at vulnerable places in order to depredate elephants intervening to human habitats and herbivores near the villages to quench their thirst during summer.

1.22.1. Methodology:

This conservation plan will follow the methods regularly used by foresters (starting from forest guard to DFO, Singrauli Division). The objectives of this plan are necessarily, prescriptions of approved Working Plan need to be followed by the foresters for management of both forest and wildlife of the ZoI of this coal block area. The prescriptions are applicable to the Core area (mining project) and Buffer area i.e., **10 km from the periphery of mining lease boundary.**

Biogeographically, the state falls in Deccan bioregion comprising representative fauna of central India like Leopard (*Panthera pardus*), Gaur (*Bos gaurus*), Sambhar (*Cervus*



unicolor), Chital (*Axix Axis*), Nilgai (*Boselaphus tragocamelus*) and Wild Boar (*Sus scrofa*). The wild buffalo (*Bubalus bubalis*) and Hill myna (*Gracula religiosa*) are also present which have been declared as rare and endangered (IUCN Red Data Book).

1.22.2. Data Referred:

The following Data has been referred.

- ▶ Project Details including impact of mining.
- ▶ Locality factors including Climate, Geology, Hydrology and Ecology.
- ▶ Demography
- ▶ Forest and Wildlife related Chapters of Working Plan.
- ▶ Bio-diversity scenario.
- ▶ Survey of India Toposheets, Maps indicating mining area, surface map, forest maps of Singrauli district.
- ▶ Information about Plant species of medicinal and economic importance.
- ▶ Information about rare and endangered plants and animals.
- ▶ Information about Wildlife census and Poaching.
- ▶ Information about Compensation paid to victims due to Wildlife- Human interface.
- ▶ Present forest management practices and Working Plan prescriptions.
- ▶ Present Wildlife management in the area as depicted in the Working Plan (Wildlife overlapping Working Circle).

1.22.3. Data Source:

- Working Plans of Singrauli Forest Division were the primary source of Data for preparation of this Plan.
- Range Officer, Bandha, Tehsil-Sarai, furnished data about poaching, compensation to Wildlife Victims apart from data on wildlife census, presence and movement of wild animals and indirect evidence about them in the impact area of this Coal mine.
- On our approach to Chief Conservator of Wildlife regarding census figure of Wildlife in the State, he replied that no such detailed census has been carried out nor recorded.
- Topo Sheets, Mining Plan with maps were provided by the User Agency.
- Forest Maps of Singrauli district particularly corridor area was collected from Divisional Forest Office, Singrauli and studied.



- The local Forest Staff and villagers were also interviewed by displaying a pictorial Book on Wildlife according to Schedule as depicted in the Wildlife Protection Act, 1972 to collect data about wildlife available in the area.

The Project area and Impact area was visited by the author to conceptualize the flora and fauna available in the area from 10.08.2021 to 15.08.2021.

The following information's were collected from the Mining Plan:

- Although the life of this mine is 36 years (excluding 4 years of construction period).
- The gross geological reserve of Bandha Coal Mine is 610.61 MT (Proved + indicated) and 207.35 MT minable reserve and 197.00 MT Extractable Reserve.
- Green belt development, progressive afforestation since inception of the project and concurrent backfilling from 10th year of mining will facilitate at least ground nesting birds and reptile and small herbivores to take shelter in and under the reclaimed land/ green cover.



CHAPTER-2

THE PERCEIVED IMPACTS OF THE PROJECT ON THE ENVIRONMENT

2.0. THE PERCEIVED IMPACTS OF THE PROJECT ON THE ENVIRONMENT

2.1. Impact on the Environment in General:

Any mining project has its impacts on the biotic, physical and socio-economic environment. Some are beneficial to society, some are not. Evaluating these impacts, all projects are implemented. The Bandha Coal Block is not left untouched in these aspects. When certain impacts are disasters, it necessitates mitigating such problems with established technology and scientific study. Such negative impacts are discussed here to help in implementing mitigative measures. This mining lease, when in operation, will certainly displace wild animals and flora and restrict the use of habitat within the lease. All the species from the area of mine will be displaced to the adjoining Protected Forest. Mining has long term adverse impacts on wildlife, including impairment of its habitat or native environment. Many animal species cannot adjust to the changes brought on by the land disturbances due to mining. Important habitats such as primary breeding grounds may lead to the elimination of species. The unique habitat of old forest growths may be impossible to restore even after proper reclamation of the mined-out areas. The exodus of animals from the lease area will force them to move into safer habitats, putting extra pressure there on existing resources and also, they may move into human habitation, leading to more conflict with humans.

The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the Mine varies between 405.00 m in the north western part to 475.00m above M.S.L. towards the southern part of the Mine. The drainages of the Mine are controlled by seasonal nala namely Bandha Nala and Kachanmuda Nala. Bandha Nala flows from south to north inside the Mine and then east to west near Ujjaini village north of the Mine. Finally, Bandha Nala discharges into Mahan River near Tingudi village north-west of the Mine. Kachanmuda Nala flows south to north inside the Mine. The drainage pattern exhibited in the area is mainly dendritic to sub-dendritic.

The structure of the Mine is simple. Mine is traversed by only one fault i.e., F1-F1. F1 – F1 fault is entering from northwestern boundary of the Mine with throw amount of 30m and as the fault moves easterly the throw gradually reduce to 0m. Roof of Seam VII and



parting above is faulted, on the basis of that fault is marked. Positions of fault on the floor of seams are shown in floor contour plans and seam folio plans. The thickness of the coal seam in the block area varies from 0.47 m to 15.05 m.

Geological coal reserves have been estimated Category-wise (proved & indicated), Grade-wise (G4 to G17 for proved reserve), Depth wise and Thickness wise. A total of 560.3814 MT of total reserves (Net Proved+ Indicated) has been estimated, out of this total reserves 452.0587 MT comes under proved category and 108.3227MT in indicated category.

Proposed coal block is virgin lease area, however requisite infrastructure will be developed for mining operation & allied activities such as Rest shelters, Blasting shelters, First-aid center, drinking water supply, Site-offices, Stores, CHP, Railway Siding, Workshop for HEMM, Explosive magazine, STP, ETP, WTP and toilets within the mining lease as per requirement.

During the mine development, requisite infrastructure will be developed as per requirement for mining operation & allied activities such as Rest shelters, blasting shelters, First-aid center, drinking water supply, Site-offices, Stores, CHP, Railway sidings, Workshop for HEMM, Explosive magazine, Sewage Treatment Plant, Effluent Treatment Plant for HEMM Work-shop and Water Treatment Plant for treatment of Mine Water and toilets, within the mining lease.

Table-2.1: Configuration of HEMM

SI No	Particulars	Capacity	No. of equipment
HEMM			
OBR			
1.	Diesel Hydraulic shovel	10-12 m ³	18
2.	Rear Dumper	100 T	168
3.	Diesel Drill	250 mm	23
4.	Dozer	410 HP	18
COAL WINNING			
1.	Surface Miner	50 T Class (2200 mm)	1
2.	Surface Miner	100 T Class (3800 mm)	1
3.	Front End Loader	3.8 m ³	5
4.	Rear Dumper	35 T	19
5.	Dozer with Ripper	410 HP	2
6.	Diesel Drill	160 mm	2



Sl No	Particulars	Capacity	No. of equipment
HEMM			
COMMON			
1.	Grader	550 HP	2
2.	Crane	75 T	2
3.	Crane	40-50 T	2
4.	Crane	9-11 T	2
5.	Front End Loader	5.74/6.4 m ³	1
6.	Hydraulic Shovel/Back Hoe	3.2/3.8 m ³	2
7.	Dozer	410 HP	2
8.	Wheel Dozer	460 HP	2
RECLAMATION			
1.	Hydraulic Shovel/Back Hoe	3.2/3.8 m ³	1
2.	Dozer	410 HP	2
3.	Grader	280 HP	3
4.	Tipping Trucks	8 m ³	5
5.	Water Sprinklers	70 KL	5
6.	Scraper		2
7.	Road Sweeping Machine		2
8.	Mist Spray Gun		2

Before any attempt is made to reduce various stressors and to avoid / minimize or mitigate their adverse impacts, it is necessary to identify various factors that have negative influence on the biodiversity (flora and fauna). These are specified below considering the terms of reference for the preparation of Site-Specific Wildlife Conservation Plan:

2.1.1. Impact on Soil:

Land degradation is the main impact of mining. As mentioned above, the existing topography of the core zone (Bandha Coal Block) shall be altered due to the mining project. The mining has been proposed to be done by horizontal slicing and as per field position commonly it has been noticed that the topsoil is very thin. The Overburden generated may impact the productivity of the adjacent land, if not properly reclaimed. The soil is ferruginous sandy soil, typical of the area.

2.1.2. Geomorphic Changes:

This is a long-term impact in which the original surface is disturbed, removed and redistributed. The origin of nalas or nala heads is obliterated. Top of the hill is sliced and



altitude will be altered. The soil of underground layers is piled up on the surface. These changes are so severe, quick and systematically drastic that it usually leads to destruction or extinction of species in areas of excavation and soil piling. Large ungulates and those having large home ranges leave the area. Reptiles, burrowing rodents and small mammals like porcupine and hare may be totally destroyed.

2.1.3. Loss of Forest Cover (Habitat):

Out of the total forest area of 785.49 Ha, except, the safety zone of 18.0 Ha (10.5 Ha along the lease area and 7.5 Ha along the nala), all forest growth will be cleared within the lease period i.e., 36 years (excluding 4 years construction phase) in phases according to approved by Mining Plan by MoC. All such activities will seriously affect the wildlife habitat. Besides, anthropogenic pressure from the migrant work force will also contribute to habitat degradation. All wild animals, arboreal, terrestrial & underground will be affected. The effect on wildlife will be direct or indirect, both short term and long term. The impact on wildlife is due to disturbing, removing and redistributing the land surface. A species may either be destroyed or more commonly displaced in areas of excavation and spoil piling. Geo- morphological changes reduce or eliminate living space. Where a critical habitat like primary breeding area is lost, a species may be dislocated.

2.1.4. Soil Erosion:

Although provision has been made in the proposed land use Plan for storage of topsoil over 28.75 Ha, part of it will get washed away unless assiduously protected by biological method. The general slope being southeast, during rains, there is danger of soil erosion from the surface of the overburden dumps. Soil disturbance and compaction, movement of heavy earth moving machinery (HEMM) & tippers on haul roads, scouring of banks of garland drains also lead to soil erosion. Unless erosion is firmly arrested, regeneration of reclaimed areas will be slow and ineffective. Productivity of an eroded area will be poor due to loss of soil structure and aggregate breakdown. Loss of productivity will delay or exclude the possibility of colonization by displaced animals. Sediment load will clog the nala and affect the feeding and breeding of amphibians and fish fauna.



2.1.5. Moisture Loss:

Mine areas bereft of forest cover will mean less of percolation and more run off of rain water. This will affect the hydrology of Bandha Nala, which discharges into Mahan River. The sediment load will render it unfit for use by animals.

2.1.6. Forest Fire:

The importance of addressing forest fire is felt on a priority basis owing to its effects on most eco-systems' flora and fauna. Forest Fires can be Characterized in terms of the cause of ignition, their physical properties, the combustible material present and the effect of the weather on fire. They can cause damage to property and human life, except in those areas where it may induce growth and development of grass and meadow for wider benefit for wildlife. Forest fires mostly occur during the dry summer months (February to June) when most of the state's deciduous forest shed their leaves. It is the mandatory task of a Forester to address this vital issue by checking fire occurrence through preventive measures like creating awareness programme, involvement of VSS and EDCS, fire line creation etc. and protective measures like extinguishing forest fire. Recent technological interventions on location of forest, fire occurrences received through satellite data from Forest Survey of India and hence to plan and address mitigation programmes within a time frame. One of the easiest and most effective ways of glowing leaf litter and creating fire lines to control further spread of forest fire – is the use of air blowers.

Intensive use of the area by labour force and machines is a potential hazard as a source of fire. Accidental fire in coal stockpiles in summer may spread to forest and create large scale damage to ground flora, shrub layer and trees. Ground nesting birds, slow moving reptiles or mammals and young ones will perish in such an eventuality. Accidental fires that sweep over forest degrade the habitat and recovery is a slow process either through root stock or seed fall. Plantation may be damaged outright.

2.1.7. Accidental fall:

By the end of 5th year and 10th year of mining, it may lead to accidental fall of large animals like sloth bear, deer or even elephant inside the pit, which will either be fatal or result in permanent disability/ casualty.



2.1.8. Air pollution and Rise in Ambient local temperature:

Combustion of coal occurs due to exothermic reaction between coal and air in extreme hot and arid scenarios. Coal seam fires may also happen occasionally. Burning of coal results in the production of CO₂, SO₂, N₂O and many other toxic substances. Coal bed methane (CBM), though not substantial in the ML area, is generally lost to atmosphere through exposed seams or from piles or through boreholes or fissures or cracks in the ground surface. Methane is 24 times more potent as greenhouse gas than CO₂. Nitrous oxide ranks at the top of greenhouse gas. As the coal of Singrauli coalfields is having dual characters of both low and high rank also the ambient temperature in the locality goes up to 45°C in summer. Therefore, combustion of coal has to be guarded against.

2.1.9. Noise Pollution:

Drilling, blasting, movement of HEMMs, surface miners etc. will create substantial noise. Similar noise will be produced in adjacent coal blocks, which will be felt in this area also. Such noise may result in emigration of animals. Other adverse effects of noise pollution are:

- Hearing loss, resulting from noise levels of 85 db or more
- Marking, which is the inability to hear important environmental cues and animal signals like mating call, alarm call etc. essential for survival.
- Physiological effects due to stress, i.e., increased heart rate or respiration, weakened immune response etc.
- Behavioral effects depending on noise levels may result in loss of reproductive fitness, neglect in parental care.
- Constant rumble of tippers and excavators, pay loaders may mask the sound of down chorus of birds, particularly males to attract females. Upsetting this vital part of breeding process and this could decline the bird population.
- Drowning noise made by approaching predators and blockade of alarm calls.

2.1.10. Dust Pollution:

Barring rainy days and those during which ground remains wet, dust pollution is considerable in summer. Huge clouds of dust disrupt normal living conditions. It may cause inflammation of the lungs and breathing problems leading to overly aggressive responses in animals. Dust is a stressor, as it alters the heart rate. Dust contains bacteria, fungi and viruses and can cause disease in stressed animals. In plants, dust may bring down



photosynthesis due to reduced light penetration. In the long run, due to reduced seedling, regeneration is affected. Dust deposits increase the incidences of plant pests and diseases by acting as a medium for the growth of fungi and reducing natural predators of insect pests of plants.

2.1.11. Light Pollution:

The coal yard, office, garage space, workshop, staff quarters, coal-washery, all of these will remain lighted from dusk to dawn. Horizontal dispersion of chronically increased illumination is disadvantageous to all wild animals. They are disoriented, their normal movement and behavior patterns namely, light sensitive cycles are altered.

2.1.12. Invasive weeds:

Weeds like *Xanthium strumarium*, (Cocklebur), *Parthenium hysterophorus* (Carrot grass), *Chromolaena odorata* (Poksunga), *Ocimum gratissimum* (Bantulasi) etc may strike a strong hold invading the area. Weeds are invasive in nature because their seeding potential is higher, and seeds are produced round the year. Such weeds are able to disseminate their seeds through air currents or through water. They thrive and multiply well, where the vigor of natural vegetation is weakened through clearings; weeds have low water and nutritional requirement and multiply well in altered landscape, where the soil is new. However, weeds are strong light demanders. Weeds like *Lantana camara* (Naga Airi) are propagated by birds of field and scrub level vegetation. Uprooting weeds is expensive, difficult to accomplish, it robs nutrients and makes establishment of plantation difficult. Weeds serve no purpose as food for animals.

2.1.13. Disturbance due to vehicular traffic:

Coal extraction has been proposed to be carried out by deploying surface miners. Surface miners will cut the coal and leave the cut coal behind it as windrows. The mine is proposed to be worked by shovel-dumper combination for OB excavation and Surface Miner for coal winning and loading by FE Loader (3.5-4.0 m³) in conjunction with 40 T & 100 T Rear Dumper. The mining operation will be carried out as per the approved Mining Plan.



2.1.14. Garbage:

Much garbage is likely to be generated by labor force carrying their eatables, in canteen, staff quarters, office etc. The garbage is not only offending to the environment; it attracts stray dogs, jackals, Hyena, crows and kites. Ingestion of polythene wrappers may spell disaster for mammalian species by blocking their alimentary canal leading to death.

2.2. Impact in the zone of Influence (10 km radius):

2.2.1. Depletion of Forest Growth:

Of the total study area of 1850.94 Ha, 785.49 Ha is forest area present in mining lease area. The forests are more or less well conserved. However, influx of migratory population in search of work in coal mine will require small poles for hutments and other bonfire use. Several service providers like grocery shops, eateries, Kiosks etc will come up in the area which will also need construction material. Several mine blocks in series, adjacent to one another, when operate in full swing, it is likely that forest habitat will get depleted and degraded further. Degradation of forest shall result in loss of food and shelter availability for several species of animals. Consequently, a sub-optimal habitat will no longer be able to hold and support wild animals for long, which will force emigration to less disturbed and better habitats.

2.2.2. Fragmentation of Habitat:

This is the emergence of discontinuity in animal habitat. Habitat fragmentation occurs due to forest degradation and change in land use pattern. Habitats once become divided into separate fragments, the animals will suffer for food, water etc. Due to fragmentation of habitat, smaller forest areas tend to be smaller islands isolated from each other and loose habitat qualities of a unified massive landscape. The process involves 6 discrete phenomena, viz.

- I. Reduction in total area of habitat
- II. Increase in the amount of edge.
- III. Decrease in the amount of interior habitat.
- IV. Isolation of one habitat fragment from other areas of habitats.
- V. Breaking up of one patch of habitat into several smaller patches.
- VI. Decrease in average size of each patch of habitat.



Habitat fragments are rarely representative samples of the initial landscape. By direct reduction of space for both plants & animals, biodiversity is affected. Species like elephants, which have a long home range, move from one habitat fragment to the other. Those that do not have this faculty, e.g., porcupine, hare, python etc are constrained to remain in a smaller fragment. Smaller fragments mean a smaller number of species and lesser population of a species. Smaller populations are vulnerable to extinction with reduced viability due to inbreeding and/or climatic catastrophe or diseases. Habitat fragmentation leads to 'edge effects'. Microclimates differ significantly between the interior habitat and the edge habitat. Smaller fragments are likely to be more vulnerable to fire damage. Species adapted to interior habitats are less likely to survive in an edge habitat of smaller fragments are less likely to survive in an edge habitat of smaller fragments. Invasive weeds take a faster stronghold in an edge habitat to the gradual exclusion and elimination of native species. In nutshell, habitat fragmentation lowers the viability of the habitat, critical to the survival of several species.

2.2.3. Forest Fire:

Fire is lit in the forest for several purposes viz. for ease of collection of Sal seeds, Mahua flower, Tendu leaves, grazing, and facilitating shikar, to get nutrient wash from forest floor to fields and so on. However, coal mining will introduce yet another threat from accidental coal fires from stacks and spread to forests far and wide. A large work force is a threat as a causative agent. True, fire leads to short term increases in animal food and temporary increase in breeding potential but subsequently, these increases are upset by animals' inability to thrive in an altered, simplified plant structure, which has a reduced shelter value. Fire severity, frequency size etc. change the species composition of plant community and the dependent animal species. Responses of fauna to fire may include injury to larger mammalian species and death of python, ground nesting birds like partridges, jungle fowl and pea fowl etc. Although fire creates snags, they can also destroy snags, down wood and important nurseries of animals under bushes. Fires increase dead wood; there is an eruption of wood borers and consequently insect eating birds. Raptors increase due to increased visibility. Fire alters chemical, physical and biological properties of the soil, annihilates soil microbes, reduce soil fertility and makes reforestation problematic due to lack of



nutrients in soil. Fires also alter infiltration rates of rainwater by clogging fine pores in soil by splash effect of rain drops. Overall, fire is deleterious to wild animals in the long run.

2.2.4. Soil Erosion:

When ground cover is destroyed and mineral soil is exposed due to mining, soil loss is accelerated during peak flow. Run off increases in steep inclines devoid of vegetation and carries silt loads with it. Soil erodibility is enhanced due to unstable soil and rapid change in geo morphology. As a consequence, natural regeneration is hampered, and afforestation becomes problematic due to slow growth. As soil type is reflected in the nature of vegetation and the nature of vegetation is prime determinant of wild animal species, eroded soil means poor animal community.

2.2.5. Loss of Biodiversity:

Biodiversity is variability within life entities such as species, individuals (genes), populations, communities and ecosystems. This allows adaptation of life forms to change and thus the generation of new biodiversity. Protecting the process of evolution is of central interest. Maintenance of biodiversity sustains the adaptive capacity of life; its loss is non adaptive. The latter threatens the very existence of the life support system and shelters inter and intra specific relationships and dependence. The loss of biodiversity means loss of resilience in the ecosystem. Direct drivers of biodiversity loss are land cover change, fragmentation, habitat loss, pollution and increase in ambient temperature of a locality. The crux of the problem is once lost, biodiversity and the resultant ecosystem functions cannot be recreated. Decrease in genetic variation in a small and isolated population, not open to migration results in genetic drift and disadvantageous genes get fixed in a population. Decreased variation or heterozygosity leads to increase in inbreeding resulting in inbreeding depression in a population.

2.2.6. Loss of Natural Water Resources:

There are 2 nala and one River is located in the study area of Bandha Coal Block. The drainages of the block are controlled by Bandha Nala and Kachanmuda Nala. Bandha Nala flows from south to north inside the block and then east to west near Ujheni village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village northwest of the block.



Bandha Nalla is to be strengthened by making embankment, etc. for safe operation of mine and may be utilized for discharge of rainy season water and treated water from the minefield. These nalas have more or less perennial water in summer months, getting dry with isolated water pools in drought years. But with increased mining activities and diversion of nala, increased silt load in water courses, it is feared that periodicity of stream flow will get seasonal and pools of water less. This may pose a really serious problem to mega herbivore like elephant. Consequently, elephant habitats of today may not be supportive of any elephant population, although smaller animals may cling on to the habitat.

2.2.7. Animal Depredation:

The habitations and cultivation are all in low lying nala banks on foothills. Forest boundaries being very zigzag, elephant groups, while moving from one forest to other due to fragmentation, essentially have to pass through intervening cultivation. Even otherwise, during migration, elephants keep to water courses and level grounds for conserving their energy. The intensive mining activities in the region are feared to affect the normal movement pattern and consequently, the quantum of depredation will not only increase but may surface in hitherto unknown areas.

Aggression in elephants in this area is not known but may manifest due to stress syndrome thrust due to loss of habitats and accustomed travel routes. Stress alters the delicate balance of body metabolism, which the animal tries to avoid through either escape or determined approach to obliterate the stressor. Such deliberate movement is conditioned by secretion of hormones. Past favorable and/or unfavorable experiences determine the course of action and approach to human beings.

2.2.8. Poaching:

Poaching is not a problem in the locality now. Given the good access of interstate road, rail link close by, interstate border, cases of poaching may surface anytime, when large number of mine laborers and transporters will congregate in the mine area. Interstate poacher gangs may enter the villages in guise of persons connected with mine survey and working. Lure of cash and gifts may motivate simple tribals not only to host the poacher but to cooperate and lead him as well. Poacher will always exploit the depredation scenario and



vulnerability of the people to his advantage. Poaching for elephant tusks, bear bile, mongoose hair, and pangolin scales, trapping of live birds and even capture of snakes may occur. Such activities will make a dent on biodiversity status & plant and animal communities.

2.2.9. Displacement Dilemma:

Animals displaced from mine areas or natural home ranges may be forced to use adjacent areas in buffer zone, which may be stocked to its carrying capacity. Overcrowding of displaced animals in remaining habitats of buffer zone results in their degradation and hence lower is the carrying capacity. This gives rise to reduced reproductive success, increased inter species and intra species competition and theoretically greater losses to animal numbers.

2.2.10. Grazing by Livestock:

Domestic cattle and buffaloes are usually taken to nearby forests for grazing. As mining will reduce the area available to livestock, the incidences of grazing in some patches will increase, as rotational facilities may not exist. This will have an impact on vegetation, the common food resources of wild animals. Competition for food may be intense and health of domestic/wild animals may be negatively affected. Coupled with inbreeding depression in a fragmented scenario, wild animals may be more vulnerable to cattle borne diseases.

2.2.11. Heavy Vehicular Traffic:

Mining activities will mean enhanced vehicular traffic in the buffer zone. The traffic will not only be on the main road alone but on the interior approach roads as well. Shortcut roads may develop to railway siding, coal washery and main road. Network of road and traffic will add to fragmentation, pollution levels and surface as a barrier to movement of animals across roads.

2.2.12. Disturbance due to Noise and Light:

The combined effect of noise of machinery and lights will be stressors enough to affect the physiology, behavior and movement patterns. Faced with the option of limited habitat use, depredation intensity and frequency may be on the rise. The sky glow is known to alter activity pattern of birds by disturbing their innate behavior.



2.2.13. Conflict over Resources:

Mining involves appropriation and loss of resources, which people rely on for their livelihood e.g., agricultural land, forests, drinking water resources (streams), grazing grounds, NTFP producing areas and even loss of homes. Unless the lost livelihood is adequately addressed and if the people do not benefit from the mine, a conflict will ensue.

2.2.14. Artifacts within the Landscape:

a) Road Link:

The Bandha Coal Mine Area is connected through both Ranchi – Renukoot – Singrauli – Bargawan – Sidhi – Rewa national highway and Waidhan-Bargawan-Sidhi state highway. From both national highway and state highway, network of forest roads and few pakka jeepable roads are available connecting the surrounding villages. The block is connected with Rajmelan by metalled road and the distance is about 25 km. The nearest big township is Waidhan located at a distance of 50 km from the block.

b) Rail Link:

The nearest railway station for Bandha Block is Deoragram (between Bargawan & Sarai stations), on Chopan-Singrauli-Katni-Jabalpur section of East Central Railway at a distance of 6 km from the block. Singrauli Railway station is 27 km from Waidhan. The distances of important places from Waidhan are - Varanasi (nearest Airport) 250 km, Renukoot, an industrial township and important railway station on Chopan-Garhwa Road Section of Eastern Railway is at a distance of 70 km. Chopan - Singrauli – Katni Rail line passes through North-Western Corner of the Block.

c) Electric Transmission Lines:

High Voltage Transmission Power line (400KV) passes almost centrally throughout the block. The power line has to be shifted suitably away from the Bandha Coal Block boundary as per statutory norms for operation of Bandha OCP.

d) Boundary wall and other civil Constructions:

Boundary walls of residential complexes and other civil constructions like, houses, culverts and bridges are a deterrent for free movement of animals next to mining pits and O.B. dumps. This is worrisome for free movement and continuance of animal populations in this belt.



CHAPTER-3

OBJECTIVES OF MANAGEMENT AND MITIGATION STRATEGIES

3.0. OBJECTIVES OF MANAGEMENT AND MITIGATION STRATEGIES

3.1. Objective of Management:

The main objective of the plan is to reduce various stress begin due to the working of the mine in this particular locality touching wildlife. The Site-Specific Wildlife Conservation Plan will suggest measures to minimize or mitigate such stress, if possible, how to avoid certain activities which could reduce the negative influence of the mining activity. Wildlife management consists of promoting welfare factors, arresting or reducing the impacts of decimating factors and neutralizing harmful effects of limiting factors that keep the animal population lower than the carrying capacity of the area. It also aims at management of human dimensions relating to regulation of habitat use, sufferance from animal damages, livelihood issues and taking people as partners in conservation management. Such concerns are reflected in the prescriptions. The management of the ML area will aim for maintenance of habitat for smaller animals that used to live and share habitat with mining activity. At the same time, the virgin area will nurture as a part of the larger habitat for wild animals that may come over. The management of Buffer Zone will target optimization and maintenance of wildlife habitat and biodiversity, involving local people as far as practicable and aim to avoid / minimize or mitigate the adverse impacts of the mining activity. The ML area is full of forest growth. Tall trees stand in virgin areas. Animals that occasionally visit the core area should not be left as refugees. Their rehabilitation would be the major objective of the plan. To fulfil all these requirements, the plan focused on improving forage and browse volume by increasing food plant diversity with vertical and horizontal cover. These will arrest habitat destruction and fragmentations and also prevent soil erosion and loss of biodiversity. Keeping natural water resources free from negative impact of the mining activity will also be targeted.

Objective of management to mitigate the threats to the wildlife is covering the following aspects.



- i. Undertake appropriate attentive measures in mine working so as to avoid/minimize or mitigate the adverse impacts on wildlife in and around the mine.
- ii. Maintain/enhance food and cover values in buffer habitats while counterbalancing decimating factors.
- iii. Initiate studies on habitat utilization pattern of the Umbrella Species ‘elephant’ and other wildlife with a view to strengthening and secure the critical habitat.
- iv. Control depredation by wild animals to generate public support in conservation management and build up synergy in conjunction with regular protection set up.

3.2. Strategies to Mitigate and Minimize adverse Impacts:

Keeping the above objectives in view, the following strategies are suggested to mitigate and minimize the adverse impacts.

3.3. Strategies for mining lease area:

3.3.1. Protection of Virgin Forest:

Total **08 Nos. of Van Sahayaks** will be engaged for protection of 785.49 ha of virgin forests. They will be selected from local villages on the recommendation of the Forest Range Officer, and Gram Head. The youth shall have working knowledge to read and write but the prime requirement will be knowledge of the forest area and movement path of animals. They will take orders from the Manager of the mine and report to him on day-to-day happenings and animals seen. Each one will maintain a logbook of area visited and events/activities seen. They will have a bag with a pencil, notebook, a sharp knife, measuring tape and water bottle. Uniform will be supplied to them. Rigid protection will facilitate colonization of plants in blank areas through wild air borne seeds and through birds (Birds are litmus of nature). These forest patches will also provide shelter small to animals.

3.3.2. Reclamation of Mine Pits & Plantation:

This is a virgin mine. As the mine is to be top sliced, reclamation of mine pits is not possible instantaneously. However, after 10 years onwards, reclamation followed by biological afforestation can be done. For this, mining has to be systematic and directional. Indigenous plant species preferred by wild animals for food and associate cover values will be planted.



Besides, plantings over safety zone of 39.5 ha of ML area and other suitable vacant area will be planted.

Table-3.1: Land Use during Mining and Post Closure (Ha)

Type	Land use (Proposed)	Land Use ((End of Life)	Land use (Post Closure)						Total
			Agriculture land	Plantation	Water Body	Public/ Company Use	Forest Land (Returned)	Undisturbed	
Excavation Area	1315	0.0	-	-	-	-	-	-	0.00
Backfilled Area	0.0	1200	295	905	-	-	-	-	1200.00
Excavated Void	0	115	-	-	-	115	-	-	115.00
Without Plantation	0	0	-	-	-	-	-	-	0.00
External Dump	350	350	-	350	-	-	-	-	350.00
Safety Zone	15	15	-	-	-	-	-	15	15.00
Road & Infrastructure Area	85	85	-	-	-	85	-	-	85.00
Settling Pond	15	15	-	-	15	-	-	-	15.00
Garland Drains	10	10	-	-	-	10	-	-	10.00
Rationalization Area	25.94	25.94	-	25.94	-	-	-	-	25.94
Greenbelt	15	15	-	15	-	-	-	-	15.00
UG Entry	10	10	-	-	-	10	-	-	10.00
Undisturbed/Mining Right for UG	10	10	-	-	-	-	-	10	10.00
Total	1850.94	1850.94	295	1295.94	15.00	220.00	-	25.00	1850.94

Within the project area restoration of habitat will be taken up in a gradual process simultaneously with the mining activity. By the time of mine closure a major portion of the project area will be developed in to a suitable habitat. During the conceptual period it is proposed to take up the 1200.00 ha backfilled area which will be used under green belt development programme and



plantation will be done on 35.00 ha safety zone area and 20.00 Ha separate for greenbelt from the base year.

Based on the standard plantation norm i.e., 1200 seedling/ha, the total number of seedlings proposed to be planted within the conceptual period will be 15,06,000 seedlings.

The safety zone area is situated around the mine pits. This area will be taken up for plantation and will create a green belt around the mining area and will control the spreading of dust and coal powder. This belt will also act as a buffer zone between the mine and the Wild-life habitat. These plantations have been prescribed in the mining plan; hence no additional funds are proposed for this.

Table-3.2: Selected Species for Plantation

Browse plants		
1	Dhaman	<i>Grewia tiliifolia</i>
2	Bana Kapsasia	<i>Kydia calycina</i>
3	Bija	<i>Pterocarpus marsupium</i>
4	Sisoo	<i>Dalbergia latifolia</i>
5	Safed siris	<i>Albizzia procera</i>
6	Kala Siris	<i>Albizzia odoratissima</i>
7	Ber	<i>Ficus bengalensis</i>
8	Hill Bamboo	<i>Dendrocalamus strictus</i>
Cover plants		
1	Mango	<i>Mangifera indica</i>
2	Jamun	<i>Syzygium cumini</i>
3	Chhatian	<i>Alstonia scholaris</i>
4	Karanj	<i>Pongamia pinnata</i>
5	Kusum	<i>Scheichera oleosa</i>
6	Tamarind	<i>Tamarindus indica</i>
7	Mundi	<i>Mitragyna parviflora</i>
8	Kasai	<i>Bridelia restusa</i>
9	Neem	<i>Azadirachta indica</i>



10	Jari	<i>Ficus retusa</i>
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3.3.3. Soil Erosion Control:

The opencast mine is planned up to 99.40 m to 501.13 m maximum depth on the floor of seam-VII with overall average stripping ratio of 9.76 m³/ton. With due consideration to geo-mining characteristics of the deposit, the mine is proposed to be worked by shovel-dumper combination for OB excavation and Surface Miner for coal winning and loading by FE Loader (3.5 — 4.0 m³) in conjunction with 40 T & 100 T Rear Dumpers. The mining operation will be carried out as per the Approved Mining Plan, which is approved by Ministry of Coal, Govt. of India. Mining will be carried out 330 days / year, in 3 shifts/day, 8 hours/shift basis.

Due to the mining activities involving digging of large pits there will be substantial loss of moisture. There will also be large scale soil erosion due to mining activity. Most of the area will be covered for mining activity and mining pits will be dug excluding the safety Zone. It is not practicable to take up any Soil and Water conservation activity within the mining area. However, in the safety zone the rain water will be diverted in easy gradient channels to the settling tanks to cause minimum soil erosion. This provision has been made in the Mining Plan as well as Environment Management Plan. Hence no separate provision is made for this.

The OB dumps where soil erosion rate is anticipated to be very high will be stabilized by planting trees and grass. Such a provision is made in the Mining plan; hence no separate provision is made in this plan.

3.3.4. Grass Seeding:

The OB dumps will be further stabilized by seeding grass pellets all over. Such pellets can be made by mixing powdered clay with organic manure in 6:1 ratio, needed to make dough in which grass seeds are thoroughly mixed. Such dough is then rolled into balls of 1cm. dia and sun dried. Per hectare requirement of seeds will be 3 kg. Pellets will be put at a spacing of 1.5x1m and 7000 such pellets will be needed per ha. Species of grass to be used are *Imperata cylindrica*, *Chrysopogon zizanioides* and *Themeda triandra*.



3.3.5. Water Pollution Control:

The system of garland drains will be connected to settling tanks where turbid water is allowed to move slowly. Alum is also added to the water to facilitate sedimentation of silt and colloid. Clean water will be allowed to be discharged in the natural streams. Here also series of check dams will be made to facilitate deposition of silt. Grass covering over blanks will also reduce silt load in water.

Water pollution is the most important factor in coal mining. Huge quantities of water will be generated every day along with slurry which is to be removed from the mining pits. In addition, large quantities of contaminated water due to cleaning of vehicles and machinery, dumping of Garbage etc. will also be generated. The water pollution will be controlled by treatment of water before releasing the same into the natural drainage system.

The discharged water will be collected in sump pits and channeled to sedimentation pond and effluent treatment plant. Treated water will be used for dust suppression on haul roads, washing of dumpers and dozers etc. The following steps are taken to control water pollution:

- ▶ Wastewater generated in the workshop and vehicle servicing/machinery servicing units are channeled through oil & grease tap and settling tanks.
- ▶ Provision of septic tanks, soak pits and Sewage Treatment plant installed for domestic effluents.
- ▶ Mine discharge water is treated and re-used.
- ▶ Garland drains were provided around OB dumps and the water channeled through settling tanks.
- ▶ Regular monitoring is done and corrective steps taken when required.
- ▶ Oil and Grease recovered manually will be stored in drums and auctioned.

Surface runoff will be channeled through sedimentation ponds to settle the suspended materials, garland drains and the overflow will be diverted to the natural drainage system.

All these measures have been proposed in the Environment Management Plan and therefore special provision has not made for this.



3.3.6. Dust Control:

The spread of huge amounts of dust causes air pollution which affects human beings and the workers engaged in the mining activity, besides creating problems for the wild animals. Therefore dust control is a major activity in the mining process. Dust generation cannot be completely eliminated, but an attempt is made to reduce the quantum of dust in the mining process. The steps taken for control of dust are:

- ▶ The drills are provided with a well- designed dust extraction/suppression system. Wherever necessary, wet drilling will be taken up.
- ▶ A blasting operation is designed to produce minimum dust.
- ▶ Use of optimum amount of explosive so as to produce minimum dust.
- ▶ Use of sprinklers and dust suppression units at the time of loading, transportation and handling of coal and over burden. Mobile water sprinklers and mobile Tankers will be deployed in the project area wherever necessary, particularly in the coal storage yard.
- ▶ Dust extraction/suppression system installed in coal handling plant through mist formation system and sprinklers at all transfer points as well as surrounding areas.
- ▶ Black topping of haul roads and regular maintenance is done.
- ▶ Regular maintenance of HEMMs and P&M.
- ▶ Deployment of Surface Miners where dust generation is controlled by water sprinkling and the process of drilling, blasting and crushing are eliminated.
- ▶ Green belt provided around the quarry, workshop complex and avenue plantation taken up along haul roads and other roads.
- ▶ Provision of adequate firefighting arrangements.

Dust control measures have been proposed as compliance with the Environmental Impact Assessment and therefore special provision is not made for this.

3.3.7. Noise and Light Control:

The following measures will be taken to keep the noise at the minimum possible level:

- ▶ Proper designing of plant & machinery by providing in-built mechanisms like silencers, mufflers and enclosures for noise generating parts and shock absorbing pads at the foundation of vibrating equipment.



- ▶ Silencers to be provided where necessary.
- ▶ Routine maintenance of equipment,
- ▶ Enclosures for crusher house, etc.
- ▶ Rational deployment of noise generating plants and machinery.
- ▶ Greenbelts are created around the quarry, infrastructure sites, service building area and avenue plantation along the haul roads to absorb Noise.
- ▶ HEMMs are installed/ kept with soundproof cabins.
- ▶ Chute linings in Coal Handling Plant.
- ▶ Provision of isolation for vibrating equipment (both fixed and mobile).
- ▶ A major portion of coal production is achieved by deployment of ecofriendly surface miners, which eliminates the process of drilling, blasting and crushing, and reduces noise & dust generation.
- ▶ Wherever blasting is required the same is restricted to a particular time during the day (Preferably shift change time) so as to cause minimum panic to wild animals. Night blasting if avoided.
- ▶ Regular monitoring of noise levels at various points.

The core area of the mining activity is sufficiently illuminated. Such illumination detracts the animals from the core mining area, which would otherwise be dangerous to their lives. The use of vehicular Headlights which disturb the animals is restricted and only dippers are allowed within the mining area. These activities have been included in the mining process and hence no special funds are required.

3.3.8. Garbage Management:

Since Garbage not only creates problems for wildlife but also creates problems for mining activity. Particularly non-degradable materials like polythene bags etc. pose a lot of problem for the machineries as well as Wild animals. Hence proper garbage management is also an important activity in the mining process. Some of the steps to be taken within the mining area have been indicated under water pollution. The additional steps which are to be taken for Garbage management are as follows.



- 1) Entry of non-biodegradable materials which are likely to produce garbage such as polythene bags, aluminum foils, tin foils etc. are restricted into the Mining area.
- 2) Un-avoidable generation of hazardous materials such as used batteries, used oils, parts of machinery and equipment are promptly collected and kept at secluded places for disposal.
 - i. There will be a generation of large number of used batteries. These batteries will be kept in store and put on sale every year.
 - ii. Similarly large quantities of used oil will be generated. This oil will be stored in drums and auctioned annually.
 - iii. There will also be generation of huge quantities of Oily sludge from oil & grease trap as well as substantial quantities of filter materials. These materials will be disposed in pits lined with impervious layers.
- 3) The Garbage generated in the Mining area is regularly collected and segregated in-to Bio-degradable and non-degradable materials.
- 4) The non-degradable materials, if any are sent for recycling.
- 5) The Bio-degradable substances are put in the Compost pits for conversion into manure. The Manure obtained from these pits will be utilized for plantation purposes.
- 6) Garbage management is an important activity as per the provisions of the Environmental Management Plan. Hence no separate provision is made for this.

3.3.9. Fall of Animals in the Mining Pits:

In order to prevent accidental fall of animals in the mine pits the following steps shall be taken.

- ▶ The Executives and the Supervising staff will be educated and motivated to collect information regarding the presence of wild animals in the mining area. In case any such animal is noticed it will be driven away to the nearest forest.
- ▶ There will be large scale activities within the mining area, and it will be sufficiently illuminated with bright light so that the wild animals will avoid the area.
- ▶ It is also proposed to install Solar Electric fencing over 10 km to prevent animals from entering the project area. The cost involved in this will be Rs.40.00lakh @4.00 lakh per km.



- ▶ In spite of the precautions taken, in case of accidental fall of any wild animal in the mining pit, the workers will be educated to inform the local Forest authorities and act as per their advice.

3.3.10. Awareness Programme:

Strong awareness will be built up among mine workers about working ethics in the forest area. They will be told to keep the noise levels to the barest minimum, take all precautions against fire, damage to trees etc. Drivers carrying Coal from the mine will be appraised to control the speed of vehicle so as not to run over slow-moving reptiles. Behavioral change will be expected from each worker on the above points and use of garbage bins. Any sick and injured animal will have to be rescued and given first aid and water. Such an animal is to be subsequently handed over to the nearest forest official. No worker shall get involved in crime against animals & forests. Such ethics can be installed through popular lectures, through film shows and announcement/award of prizes to best ecofriendly worker.

The user agency will take steps to create awareness in the villages around the mining area. The following activities will be undertaken.

- ▶ Distribution of Leaflets.
- ▶ Essay, Debate & Drawing competition in Schools & Colleges.
- ▶ Street plays/Dance Drama. The provision of Rs. 40.00 Lakhs has been made in this conservation plan for this activity at the rate of Rs. 4.00 Lakhs per annum.

3.3.11. Free distribution of Seedlings:

In order to improve forest cover around the project area certain seedlings are to be supplied to the people in the villages around the project area. Teak seedlings and grafted seedlings of fruit bearing plants in equal proportion will be distributed. It is proposed to distribute 20,000 such seedlings per year. The estimated cost on this account will be Rs.2.00 lakhs annually. Total cost Rs.22.00 lakhs for which provision has been made in the conservation plan.



3.3.12. Fire Line:

A fire line along the boundary of the adjoining P.F./R.F. forest area and mine area will be maintained. Workers engaged for fire tracing in the beginning of February in the morning hours, when the wind is not high and ground wet, there after every fortnight till the end of fire season. Every 100 m in the line, brush wood piles will be made of 2m height and 1.5m dia. to provide artificial shelter to small animals and gallinaceous birds. The surroundings of such piles, however, will have to be periodically controlled by burned of leaf litter and brushwood. Trees above 30cm in girth will not be felled. Fire line will be maintained in 4 to 5 m width. This line will be maintained for the rest period of the Mine.

3.4. Conservation Plan for Zone of Influence:

3.4.1. Studies on Elephant Habitat Utilization:

Habitat utilization by animals changed over time to time depending on habitat factors. New areas may be used and favoured sites may be relinquished. As precise data is not available, it is of utmost importance to initiate studies on elephant habitat use.

Provision of certain equipment such as Computers (Rs.3.00 lakhs), Camera traps (Rs 6.00 lakhs), Night vision equipment (Rs.9.00 lakhs), GPS/DGPS (Rs.7.00 lakhs) etc. totaling Rs. 25.00 Lakhs have been kept in this conservation plan. Based on the requirement the Forest Department can purchase the equipment from the fund allotted in this conservation.

3.4.2. Measures for Man-Elephant/Animal conflict:

There will be regular movement of Forest officials, ADS, frontline staff, monitoring team, Etc., for monitoring, supervision, and to combat man-animal conflict, especially during elephant movement.

It is important for the forest team to quickly respond in case of any such information so that they reach the impact site immediately and take control of the situation.

For doing so it is essential to equip them with sufficient vehicles, equipment required for firefighting, controlling man-animal conflict, Anti-depredation Squad (ADS), etc. Hence,



provisions of all such things have been proposed in the conservation plan the details of which are given in this wildlife conservation plan.

It is also necessary to make people aware of the arrival of elephants in the area and continuously monitor their movements until they leave the area. Hence, a monitoring cell shall be established at the division level which should include Anti-depredation Squad (ADS), Fire Watchers, JFMC members, and other frontline staff. The monitoring team will raise alarm among the villagers to minimize damage and look for sagging overhead wires to save elephants from electrocution. Following interventions can be planned by the monitoring cell:

- 1) Anti-depredation Squad (ADS) to reach the conflict/impact sites immediately.
- 2) Hospitalization/Treatment of injured Wildlife.
- 3) Distribution of the prize money to the villagers and staff doing good work in the field of Wildlife Conservation. The prize money should also be provided to villagers for timely information regarding the Wildlife movement and conflict.
- 4) Immediately necessary help and compensation to victims.
- 5) Supervision and monitoring to combat man-animal conflict.
- 6) Implementation of site-specific Elephant Mitigation Measures
- 7) Wildlife Handling/Rescue of animals
- 8) Awareness and training programmes among locals and other stakeholders.
- 9) Provide Logistic support to the field staff.
- 10) To plan extensively to increase food base, water requirement, and shade in the available forest area. In addition, an attempt should be made to retain wildlife in their natural habitat to avoid conflict.
- 11) Use modern biological techniques to drive wild animals back to the forest without causing harm or irritating them.

Following steps can be taken by the forest department/cell for restricting elephant in their natural habitat:

- 1) **Installation of barrier** – Elephant Proof Trenches (EPTs), Hanging Fence, Bio-fence, Chilly fence as per requirement, etc. The provision of Rs. 40.00 Lakhs has



been made for Creation of various physical barriers like elephant proof trench (EPT), removable barriers, spike walls, etc.

- 2) **Use of Chilli:** Chilli is known to have an irritating effect on the olfactory nerves of elephants. Hence chili-based methods are found to be effective against elephants. However, it may also act as a psychological barrier. Chilly as a repellent can be used as chili smoke, chili rope, chili curtain, and chili bricks. Chili ropes were found to be more effective against elephant family groups than bulls and in drier regions as compared to high rainfall regions (Chelliah et al., 2010, Current Science); thus, it is more appropriate to use this deterrent for only a few weeks prior to harvest of cereal crops to minimize the chances of elephants being conditioned to recognize this as harmless.
- 3) **Beehive fences:** Elephants are known to be afraid of bees. In Africa, beehive fences have been found to be effective in deterring elephants. A series of beehives are created at short intervals around the most affected village. The villagers can be encouraged to start apiculture. When elephants try to enter the village, the bees get disturbed and start buzzing around the elephant, thus driving away the elephants. It is also said that if elephants encounter bees, they will alert other herd members through low-frequency sounds (inaudible to humans). Farmers get an additional benefit of income from honey and better pollination.
- 4) **ANIDER** in elephant prone area: Installation of Advance Device with GSM facilities.
- 5) **Smart Stick Forester:** For self-defense when encountering with elephant.
- 6) **Guiding elephants back into their natural habitat:** Repellents like Dragon Torches, Bee Sound (Plan Bee), Loudspeakers, Siren, Chilli Smoke, etc., can be used. a. Chilli smoke is one of the effective methods as elephants are known to sneeze and cough while inhaling the smoke. In addition, elephants change their paths if they come across chili smoke. Chilli smoke can be generated in many ways, limited only by human ingenuity. For example, it can be generated by incorporating chili in slow-burning grass bundles or dung cake, sprinkling it on slow-burning embers and campfires.



- 7) Other methods, such as kerosene torch (Marshal) and swinging fireball, may be used.
- 8) Playback calls of predators such as the tiger or even smaller carnivores such as leopards may evoke negative responses in elephants and keep them from entering agricultural areas. A loudspeaker can be used for this.
- 9) Involvement of local volunteers as Gajbandhu/Gajmitra.
- 10) Cash reward to villagers as Gajbandhu/ Gajmitra for information & their support related to Elephant/Wildlife-Human conflict.
- 11) Awareness and training to JFMC, in Schools, and Village level volunteers for Elephant Conservation & Protection.
- 12) Immediate help to victims due to elephant conflict in crop damage, injuries, house damage, human & animal death, etc. In case of injuries to human beings, the affected person should be provided with treatment by the Forest Department free of charge.
- 13) One Software development and its maintenance/ upgradation for monitoring of Elephant movement.
- 14) Construction of Watch Tower with rest room for ADS team, frontline staff, villagers, etc. for monitoring and safe place during elephant raid.
- 15) **Signage**/Hoarding in frequently elephant affected villages.
- 16) **Night Guarding:** Community guarding is one of the most effective ways of protecting crops. Farmers should sleep on watch towers or machans (platforms constructed on trees). It needs to be done only when elephants are known to be active in the area for crop raising. It should be a community-based activity. Farmers will encourage their participation.
- 17) **Alternate cropping:** Alternate cropping with non-edible crops like chili and citrus not consumed by elephants could be grown on forest fringes, and areas near settlements in forest fringes may deter elephants from reaching and raiding the crop fields. Some forms of vegetative barriers may be effective.
- 18) **Bulk SMS alerts:** Whatsapp group for Bulk SMS alerts to monitoring team, JFMC members, etc. In Valparai Plateau in Tamil Nadu, SMS alerts help inform people of elephant presence in the area. This system has helped to reduce accidental encounters between elephants and people and has reduced the mortalities of people in the



area. The SMS alert system is helpful in specific locations where there is a problem of regular encounters with elephants.

- 19) Also, SMS alert requires investment in technology. Therefore, the farmers depend on either the Forest Department or an NGO. SMS alerts have also been used successfully in west Bengal to alert railway authorities about the presence of elephants on railway tracks to minimize the death of elephants due to train hits.
- 20) **Dissemination:** Training workshops should be conducted for the Forest Department frontline staff in community crop guarding techniques. The frontline staff, in turn, should train the community in these crop guarding techniques. In addition, literature and training manuals should be made available on community crop guarding techniques to the frontline staff and community.
- 21) Overall, coordination is essential between Forest Department, administration, and local police to control local mobs, creating chaos during animal raids and hindering the ADS team. So, crowd management becomes the most significant challenge and may lead to injury to people. Therefore, managing the crowd with the local administration's support is crucial.

Provision of creating awareness among community and forest officials for dealing with such situations and bringing it under control has also been proposed in the plan. Mitigative measures to prevent elephants from entering into villages have also been suggested. The provision of Rs. 40.00 Lakhs has been made for Awareness programme, training, constitution of Hathi-Mitra dal in affected villages, hiring of vehicles, labour and other expert services.

A "Nature Interpretation Centre cum Auditorium" propose for the Forest Division to conduct awareness and training programmes. The center will be equipped with all the latest facilities required for imparting training to forest officials on Biodiversity Awareness/Conservation/training to promote/conserves local art/craft/cultural heritage in an around the forest division. The center can also be used for conducting special safety wildlife awareness programmes for locals, villagers and project officials in consultation with the Forest Department. The provision of Rs. 20.00 Lakhs has been made for the construction of "Nature Interpretation Centre cum Auditorium".

The common people are unaware of the importance of wildlife in daily life, so they remain



unconcern about its importance. Apart from this, there are many general misconceptions and beliefs about wildlife. The peoples kill them due to ignorance and apathy. There is a need to educate local people about wildlife through a conservation awareness programme. Education and awareness are vital for the conservation of wildlife. Some of the essential awareness measures or steps could be:

- 1) Organizing wildlife awareness cum training programme regularly to deal with wildlife conservation issues in the impacted areas.
- 2) Involvement of JFMC and local villagers in such awareness programmes.
- 3) Training Forest staff and JFMC to deal with local wildlife issues related to poaching and man-animal conflicts with Elephant, Pangolins, Reptiles like Snakes, Monitor lizard, Skink, etc. and the importance of birds, etc.
- 4) Special awareness programme for snake identification, snake bites, and first aid.
- 5) Bird Watching workshop and awareness programme in schools and colleges.
- 6) Signage/Hoarding in villages for awareness with photographs of wild animals reported in the area and method of reporting to forest officials in case of any emergency.
- 7) Toll-free/phone number on signage for information regarding any wildlife mortality on the road and other places.

It is a fact that the conservation of wildlife or forests cannot be dealt with in isolation. The need of the people who are traditionally dependent on the forest for their livelihood should be understood and their support should be sought on wildlife conservation measures. Furthermore, eco-development measures can help in winning the confidence of local people. The provision of Rs. 40.00 Lakhs has been made for the Developmental activities in JFM areas for socio-economic development and Rs. 40.00 for Various eco-tourism promotion activities.

Awareness programmes should also be conducted on specific issues which lead to the human-animal conflict such as:

- 1) Cattle Grazing



- 2) Collection of firewood from forest
- 3) Encroachment over forest land

3.4.3. Wildlife Census:

An annual game census will be organized, that involves taking stock of existing populations of Leopard, Elephant, and other herbivores, Aves & reptiles. A combination of methods will be used to obtain reasonable estimates of species populations. The methods include 24-hour Camera Trap method or PPP (Pug Impression Pad) method for leopards and other mega wildlife near waterholes, spoor counts, walking strip counts, daily forest guard observations and hunting reports. An analysis of the census data will provide essential information on the present status of the mega wildlife species populations and facilitate prediction of trends in composition and structure of these populations.

Studies of the characteristics of various species including mating habits, sex/age ratios, breeding age, number of young at birth, feeding and roosting ranges, mobility, migration, saturation point, carrying capacity, habitat requirements, food preferences, water requirements and diseases.

This census will give an indication of increase or decrease in wildlife population growth and basing on that, remedial measures for vegetative growth has to be adjudged.

3.4.4. Meadow Development:

This can be taken up in adjoining PF/RF in the Zone of influence where permanent gaps are available, and weeds have overgrown over **20 ha**. First, the weeds will be up rooted and grass seeds mixed with leguminosae seeds will be sown broadcast before monsoons. When such areas are not available, canopy pepper pot openings will be created, and undergrowth thinned to encourage grass growth. This will not be overdone to attract weeds. Needless to say, cattle will have to be kept out of this area or regulated grazing will be enforced. From Wildlife point of view these meadows serve the purpose of grazing ground for herbivores.

3.4.5. Soil and Moisture Conservation:

With a view to neutralize effect of the limiting factor i.e., water and to conserve Soil & Moisture content, one water body will be created in each P.F. at the periphery of mine



lease area (As per Singrauli Forest Department). This is a hilly tract and water shortage is felt during summer. All animals, especially small ones, will benefit immensely, since they have limited mobility. Water bodies will be made in valleys, depressions or nalla banks where there is reasonable prospect of water storage during summer. Each water body will be 40' x 30'. Excavation will go up to about 5m depth. An amount of Rs 75.00 Lakhs @ of Rs 7.5 Lakh Per Annum has been proposed for Soil and Moisture Conservation Activities.

3.4.6. Salt Licks:

Mineral salt is needed by all animals, starting from elephant, deer to porcupine, pangolin etc. to have good health. To compensate the natural salt licks affected by habitat degradation, 10 more salt licks will be provided. Salt licks are made by mixing 6 parts clay with 1 part mineral mixture. Mineral mixture is compounded with 90 parts of common salt, 8 parts of rock salt and 2 parts of mineral mixture. The latter consists of essential elements like Calcium (Ca), Magnesium (Mg), Zinc (Zn), Selenium (Se), Molybdenum (Mo), Iron (Fe), Phosphorus (P), Sulphur (S), Boron (B) etc. The provision of Rs. 25.00 Lakhs has been made for the construction of Salt lick near water bodies and other suitable areas.

3.4.7. Corpus Fund:

A corpus fund at the Project cost will be operated by DFO, Singrauli division to outreach victims of house damage or accidental death due to trampling by elephant in particular and other mega wildlife in general. Ex-gratia will be sanctioned in part forthwith from this fund by concerned DFO after preliminary enquiry report received from Range Officer and Revenue Inspector and local Police Officer.

3.4.8. Inoculation of Livestock:

In Waidhan Taluka as per information gathered from VAS approximately 10,000 cattle are living. Regularly they visit the nearby forest area where ungulates like deer, sambar, wild boar and Nil gai are also living. These village cattle are often affected by FMD (Foot and Mouth disease) when visiting forest area for grazing such disease will transmit to wild ungulates. In order to overcome this shortcomings, the cattle will be regularly inoculated



against F.M.D (Foot and Mouth Disease), to prevent spread of cattle borne diseases in the forest and affect wild animals (Hoofed animals like Deer, Sambar, Wild Boar etc.).

3.4.9. Monitoring Committee:

A monitoring committee under the Chairmanship of Conservator of Forests will be formed where D.F.O., Singrauli will be the member. Besides, the Range Officers, Foresters, Forest Guards will also be members together with VSS (Van Surakhya Samiti) presidents of V.S.S.s involved in the Project area. Also, the Honorary Wildlife Warden of Singrauli Division will be special invitees. A representative of the User Agency shall also be invited to such a meeting.

The Forest Department staff as well as the members of VSS will be sent on exposure visits within and outside the state. An amount of Rs.1.00 lakhs will be required annually. Total cost Rs.10.00 lakhs have been provided in the conservation plan towards this.

3.4.10. Safeguard along Roadside:

The Bandha Coal Mine Area is connected through both Ranchi – Renukoot – Singrauli – Bargawan – Sidhi – Rewa national highway and Waidhan-Bargawan-Sidhi state highway. From both national highway and state highway, network of forest roads and few pakka jeepable roads are available connecting the surrounding villages.

There is movement of elephants and other herbivore/carnivore species from dusk to dawn and the possibility of accident is inevitable. Therefore State Highway Authorities will be appraised to provide road underpass near the Rivers and Local Nalas within the transportation route of coal in Singrauli coal field area.

Fluorescent Sign Boards (both metal boards as well as masonry boards) with good write ups about movement of wild animals will be provided on sensible points of the National Highway and State Highway adjacent to this Coal Block in order to make aware the passers-by about occurrence of accident if they are confronted with wildlife. The provision of Rs. 25.00 Lakhs has been made for the Safety precautions, signage, boards, and displays to avoid the Man-Elephant/Animal conflict.



CHAPTER-4

MANAGEMENT STRATEGIES WITHIN THE PROJECT AREA WITH FINANCIAL FORECAST

4.0 MANAGEMENT STRATEGIES WITHIN THE PROJECT AREA WITH FINANCIAL FORECAST

- A. Interventions to be implemented by the project authority inside the project area with justification.** All measures are discussed in Chapter-3. The financial requirement of various interventions suggested in the plan as per current costs is given in flowing table for the plan period of 10 years and annual cash flow for the core area of the project. All activities within the core area will be implemented by the project proponent.
- B. Relevant provision of Environmental plan for the project and the intervention overlapping in nature are to be specified.**

Table-4.1: Financial Forecast

Sl No.	Management interventions	Estimated Cost (in Lac)
Wildlife Habitat Improvement Works		
1	Assisted Natural regeneration with gap plantation (200 plants/ha) over 300 ha in nearby forest areas @ Rs. 25,000/- Ha	90.00
2	Soil and Moisture conservation activities: Development of water bodies like stop dam, water tanks, earthen dams, etc. depending on the site suitability (catchment area, run-off, etc.)	50.00
3	To Prevent Soil Erosion: Eradication of weed hindering the growth of palatable grasses	50.00
4	Planting of species suitable to wildlife like legumes, etc.	25.00
Fire Protection Works		
1	Engaging fire watchers, cleaning and burning of fire lines, fire fighting squads, hiring vehicles, training and awareness program, etc.	50.00
Special provision for human elephant conflict		
1	Creation of various physical barriers like elephant proof trench (EPT), removable barriers, spike walls, etc.	60.00
2	Solar fencing, tentacle fencing, biological fencing.	50.00
3	Various acoustic deterrence's and farm based deterrence like flash light, spot light, flickering light, etc.	45.00
4	Mobile app based technology like Sajag app	10.00
5	Awareness programme, training, constitution of Hathi-Mitradal in affected villages, hiring of vehicles, labour and other expert services.	40.00



6	Miscellaneous expenditure related to human elephant conflict	35.00
7	Construction of tower for suitable plan for monitoring purpose.	40.00
8	Free distribution of Seedling	22.00
Organizational Strengthening		
1	Equipments for studies on Elephant Habitat Utilization like Camera trap, DGPS, Drone etc.	25.00
2	Training related to monitoring Forest department Staff	10.00
3	Training related to monitoring by VSS Members	10.00
4	Construction of Nature Interpretation Centre cum Auditorium	20.00
Strengthening forest management committee for better cooperation and protection		
1	Developmental activities in JFM areas for socio-economic development	40.00
2	Various eco-tourism promotion activities	40.00
3	Construction of grainery, godown for safety from elephants.	25.00
4	Distribution of seedlings of fruit bearing and other species in village areas.	25.00
Miscellaneous expenditures		
1	Safety precautions, signage, boards, displays	25.00
2	Study tours for gaining experiences and knowledge about efforts being done, within or outside country in human elephant mitigation.	25.00
3	Corpus Fund	25.00
Total		837.00
10% Cost escalation and Unforeseen		83.70
Grand Total		920.70


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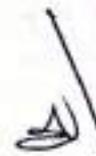
Sl. No.	Management interventions	Year wise financial projection (in Lac.)										Total	
		I	II	III	IV	V	VI	VII	VIII	IX	X		
WILDLIFE HABITAT IMPROVEMENT WORKS													
1	Assisted Natural regeneration with gap plantation (200 plants/ha) over 300 ha in nearby forest areas @ Rs. 25,000/-/Ha	24.00	18.00	06.00	06.00	06.00	06.00	06.00	06.00	06.00	06.00	06.00	90.00
2	Soil and Moisture conservation activities: Development of water bodies like stop dam, water tanks, earthen dams, etc. depending on the site suitability (catchment area, run-off, etc.)	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	50.00
3	To Prevent Soil Erosion: Eradication of weed hindering the growth of palatable grasses	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	50.00
4	Planting of species suitable to wildlife	00.00	05.00	00.00	05.00	00.00	05.00	00.00	05.00	00.00	05.00	05.00	25.00
FIRE PROTECTION WORK													
5	Engaging fire watchers, cleaning and burning of fire lines, hiring vehicles, etc.	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	50.00
SPECIAL PROVISION FOR HUMAN ELEPHANT CONFLICT													
6	Creation of various physical barriers like elephant proof trench (EPT), removable barriers, spike walls, Solar fencing, tentacle fencing, biological fencing etc.	20.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	05.00	80.00
7	Various acoustic deterrence's and farm based deterrence like flash light, spot light, flickering light, etc. Mobile app based technology like Sojag app, Elephant depredation squad, Gajraj vahan and other suitable vehicles and equipments.	45.00	35.00	25.00	20.00	15.00	20.00	13.00	12.00	10.00	05.00	05.00	200.00
8	Awareness programme, training, constitution of Hathi-Mitra dal in affected villages, hiring of vehicles, labour and other expert services. Miscellaneous expenditure related to human elephant conflict. Construction of tower for suitable plan for monitoring purpose. Free Distribution of Seedlings	03.00	02.00	02.00	02.00	02.00	03.00	02.00	02.00	02.00	02.00	02.00	22.00



Wildlife Conservation Plan for Bandha Coal Mine in Singrauli Forest Division, Madhya Pradesh of M/s EMMRL

ORGANIZATIONAL STRENGTHENING												
9	Equipment for Studies on Elephant Habitat Utilization	15.00	00.00	00.00	00.00	00.00	00.00	00.00	10.00	00.00	00.00	25.00
10	Training Related to Monitoring by Forest Staff and members of VSS	02.00	02.00	02.00	02.00	02.00	02.00	02.00	02.00	02.00	02.00	20.00
11	Construction of Nature Interpretation centre cum Auditorium	10.00	00.00	00.00	00.00	00.00	00.00	00.00	10.00	00.00	00.00	20.00
STRENGTHENING FOREST MANAGEMENT COMMITTEE FOR BETTER COOPERATION AND PROTECTION												
12	Developmental activities in JFM areas for socio-economic development	20.00	00.00	00.00	00.00	00.00	00.00	00.00	20.00	00.00	00.00	40.00
13	various eco-tourism promotion activities	00.00	00.00	20.00	00.00	00.00	00.00	00.00	00.00	00.00	20.00	40.00
14	Construction of grainery, godown for safety from elephants.	00.00	15.00	00.00	00.00	00.00	00.00	00.00	00.00	10.00	00.00	25.00
15	Distribution of seedlings of fruit bearing and other species in village areas.	05.00	00.00	05.00	00.00	05.00	00.00	05.00	00.00	05.00	00.00	25.00
MISCELLANEOUS EXPENDITURES												
16	Safety precautions, signage, boards, displays	15.00	00.00	00.00	00.00	00.00	00.00	00.00	10.00	00.00	00.00	25.00
17	Study tours for gaining experiences and knowledge about efforts being done, within or outside country in human elephant mitigation.	15.00	00.00	00.00	00.00	00.00	00.00	00.00	10.00	00.00	00.00	25.00
18	Corpus Fund	05.00	00.00	05.00	00.00	05.00	00.00	05.00	00.00	05.00	05.00	25.00
	Total	194	97	85	55	55	55	55	131	63	47	837.00
	10% Cost escalation and Unforeseen	19.4	9.7	8.5	5.5	5.5	5.5	5.5	13.1	6.3	4.7	83.70
	Grand Total	213.4	106.7	93.5	60.5	60.5	60.5	60.5	144.1	69.3	51.7	920.70

(Rs. Nine Crore Twenty Lakhs Seventy Thousands Only)

Approved: वन मण्डल अधिकारी
वन मण्डल सिंगरोली (सा.)


(Jasbir Singh Chauchan)
Principal Chief Conservator of Forests
(Wildlife) & Chief Wildlife Warden, M.P.
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Chapter 4
Page 113



कार्यालय वन मण्डल अधिकारी वन मण्डल सिंगरौली (म०प्र०)

भाजन मोड़ जिला पंचायत के बगल में
ईमेल-dfot.sgl@mp.gov.in, फोन-07805-233336 फैक्स-233335

क्र०/तक०/ 1792
प्रति,

सिंगरौली, दिनांक. 18-03-2025

प्राधिकृत अधिकारी,
बन्धा कोल ब्लॉक,
मेसर्स ई. एम. आई.एल. माईन्स
एण्ड मिनरल रिसोर्सेस लिमिटेड सिंगरौली

विषय:- वन मण्डल सिंगरौली के परिक्षेत्र बैड़न/पूर्व सरई के वन कक्ष क्रमांक आर.एफ. 389, 390, 291, 292, 293, 391, 392, 296, 319, 320 एवं पी.एफ. 316, 317 के रकवा 781.94 हे० वनभूमि एवं विभिन्न खसरो के रकवा 3.55 हे० राजस्व वनभूमि (कुल रकवा 785.49 हे० वनभूमि) के स्थान पर पुनरीक्षित रकवा 807.917 हे० वनभूमि में बन्धा कोल ब्लॉक ओपन कास्ट कोयला उत्खनन के व्यपवर्तन का - मेसर्स ई. एम. आई.एल. माईन्स एण्ड मिनरल रिसोर्सेस लिमिटेड का ऑनलाईन प्रस्ताव क्रमांक FP/MP/MIN/144129/2021

संदर्भ:- अपर प्रधान मुख्य वन संरक्षक (भू-प्रबंध) म०प्र० भोपाल का प्राप्त आदेश क्रमांक/एफ-1/841/2023/10-11/889 दिनांक 12.03.2025

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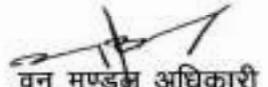
विषयांतर्गत के संबंध में वन मण्डल सिंगरौली अंतर्गत वन परिक्षेत्र बैड़न के कक्ष क्रमांक आर. 389, 390, वन परिक्षेत्र पूर्व सरई के कक्ष क्रमांक आर. 290, 291, 292, 293, 294, 296, 319, 391, 320 एवं पी. 316, 317 में प्रभावित वनभूमि रकवा 804.367 हे० एवं राजस्व वन भूमि रकवा 3.55 हे० कुल रकवा 807.917 हे० भूमि मेसर्स ई. एम. आई.एल. माईन्स एण्ड मिनरल रिसोर्सेस लिमिटेड द्वारा आवंटित बन्धा कोल ब्लॉक ओपन कास्ट कोयला उत्खनन हेतु वन संरक्षण अधिनियम 1980 के अन्तर्गत ऑनलाईन प्रस्तावित है।

सन्दर्भित पत्र से प्रस्तावित खदान से 10 कि.मी. की परिधि में पाये जाने वाले फलोरा-फौना के संरक्षण हेतु 10 वर्षीय वन्यप्राणी संरक्षण योजना में लागत राशि का विवरण निम्नानुसार है :-

क्र०	मद का नाम	रकवा (हे० में)	कैम्पा मद में जमा की जाने योग्य राशि	कुल योग
1	वन्यप्राणी संरक्षण योजना	807.917	9,20,70,000 /-	9,20,70,000 /-
			9,20,70,000 /-	9,20,70,000 /-

10 वर्षीय वन्यप्राणी संरक्षण योजना रकवा 807.917 हे० की राशि रु. 9,20,70,000 /- (रु. नौ करोड़ बीस लाख सत्तर हजार मात्र) जिसे कैम्पा मद में भारत सरकार की वेबसाईट के माध्यम से जमा कराकर चालान एवं यू.टी.आर. की प्रति इस कार्यालय में प्रस्तुत करे।

अतः उक्त प्रस्तावित प्रकरण में अनुमोदित वन्यप्राणी संरक्षण योजना में अधिरोपित समस्त शर्तों का पालन प्रतिवेदन तैयार कर इस कार्यालय को प्रेषित करे। ताकिं वरिष्ठ कार्यालय को प्रेषित किया जा सके।

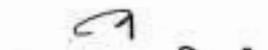

वन मण्डल अधिकारी
वन मण्डल सिंगरौली

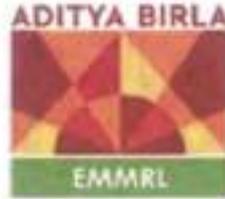
सिंगरौली दिनांक. 18-03-2025

पू०क्र०/तक०/ 1792

प्रतिलिपि:-

1. अपर प्रधान मुख्य वन संरक्षक (भू-प्रबंध), मध्यप्रदेश, भोपाल की ओर सूचनार्थ सम्प्रेषित।
2. वन संरक्षक, रीवा वृत्त रीवा की ओर सूचनार्थ सम्प्रेषित।


वन मण्डल अधिकारी
वन मण्डल सिंगरौली



Annexure-9

Bandha Coal Project

Scheme

For

THE USER AGENCY WILL TAKE UP PROGRAMME FOR AT LEAST 50-METER GREEN BELT ALONG THE SIDES OF THE NALLAH FROM THE INTIAL YEARS UNDER THE SUPERVISION OF THE STATE FOREST DEPARTMENT AND PROTECTION AND CONSERVATION OF NALLAHS WILL BE ASCERTAINED.

in compliance

with

Condition No. V of

Stage-I approval granted vide

Letter No.8-17/2023-FC, Dated- 01.10.2024

of Govt. of India, Ministry of Environment, Forests

& Climate Change, New Delhi.

for

Diversion of 807.917 Ha. (Instead of 785.49 Ha)

of Forest Land within 1850.94 Ha of ML area of Bandha OCP

for Non forestry use U/s-2 (ii) of FC Act-1980

in villages Bandha, Pidarwaha, Tenduha , Deori and Pachaur

In Sarai Tehsil

Singrauli District, Madhya Pradesh (MP)

M/s. EMIL Mines And Mineral Resources Limited (EMMRL)

SCHEME FOR THE USER AGENCY WILL TAKE UP PROGRAMME FOR AT LEAST 50-METER GREEN BELT ALONG THE SIDES OF THE NALLAH FROM THE INITIAL YEARS UNDER THE SUPERVISION OF THE STATE FOREST DEPARTMENT AND PROTECTION AND CONSERVATION OF NULLAHS WILL BE ASCERTAINED.

1. INTRODUCTION

Bandha Open Cast Coal Mine is a Greenfield opencast mining project spread over a lease area of 1850 Ha. in Bandha, Tenduha, Pidarwah, Deori and Pachaur villages and Mohanban RF, Tehsil Sarai, Dist-Singrauli, MP.

Ministry of Coal, Government of India has allotted this coal block in favour of M/s. EMIL Mines and Minerals Pvt Ltd (EMMRL) vide allotment order no. NA-104/5/2020-NA dated 03rd March 2021.

As per approved Mining Plan and Mine Closure Plan, the mine life is 45 years. Out of total 1850 Ha. of Mining Lease area, total forest land involved is 807.917 Ha out of which 804.367 ha forest land in RF-389, 390, 290, 291, 292, 293, 294, 296, 319, 320, 391, 392 & PF-316, 317 of Forest Range Waidhan/ Sarai East and 3.55 ha Revenue Forest in various Khasras.

M/s. EMMRL submitted the Forest Diversion proposal to obtain Forest Clearance from MoEF & CC, Government of India for 807.917 Ha. of forest land U/s 2(ii) of the Forest (Conservation) Act 1980.

The Stage-I Forest Clearance over 807.917 ha of Forest Land Under Section- 2 (ii) of the Forest (Conservation) Act, 1980 has been granted by MoEF & CC, Government of India vide their Letter No. 8-06/2023-FC, dated 05.12.2023, where in it has been stipulated as per Condition No. XV (a) for undertaking Mitigative measures to minimize soil erosion and choking of stream shall be implemented within a period of three year with effect from the issue of 'Final' approval in accordance with the approved Plan/Scheme in consultation with the State Forest Department.

2. LOCATION

The mining lease area is covered in the Survey of India toposheet no.63 I/B (R.F. 150000) and open series toposheet nos. G-44W8 (M2, M4, N2, S1, S2, R1, R3, R4) (R.F. 15,000). and situated between the Lat. 23°46'37" N & 24°13'17" N and Long. 81°45'24" E & 82°47'50" E. The above ML area comes within the villages Bandha, Tenduha, Pidarwah, Deori & Pachaur, in Tehsil Sarai, Dist.: Singrauli, MP.

3. TOPOGRAPHY

The Bandha coal block, situated in the northeastern part of the main basin, has been explored through boreholes revealing intersections from the Raniganj to Barakar formations. Geomorphologically, the district is characterized by hilly terrain, predominantly covered by the Kaimur hilly ranges, which divide the area into three physiographic divisions: the northeastern Kaimur ranges, central hill ranges, and southern hilly ranges.

About 43 percent of the Bandha block area is covered by forest land. The remaining approx. 57 percent of the block area is tenancy land and govt. Land. The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the block varies from 405.00m to 475.00m above MSL.

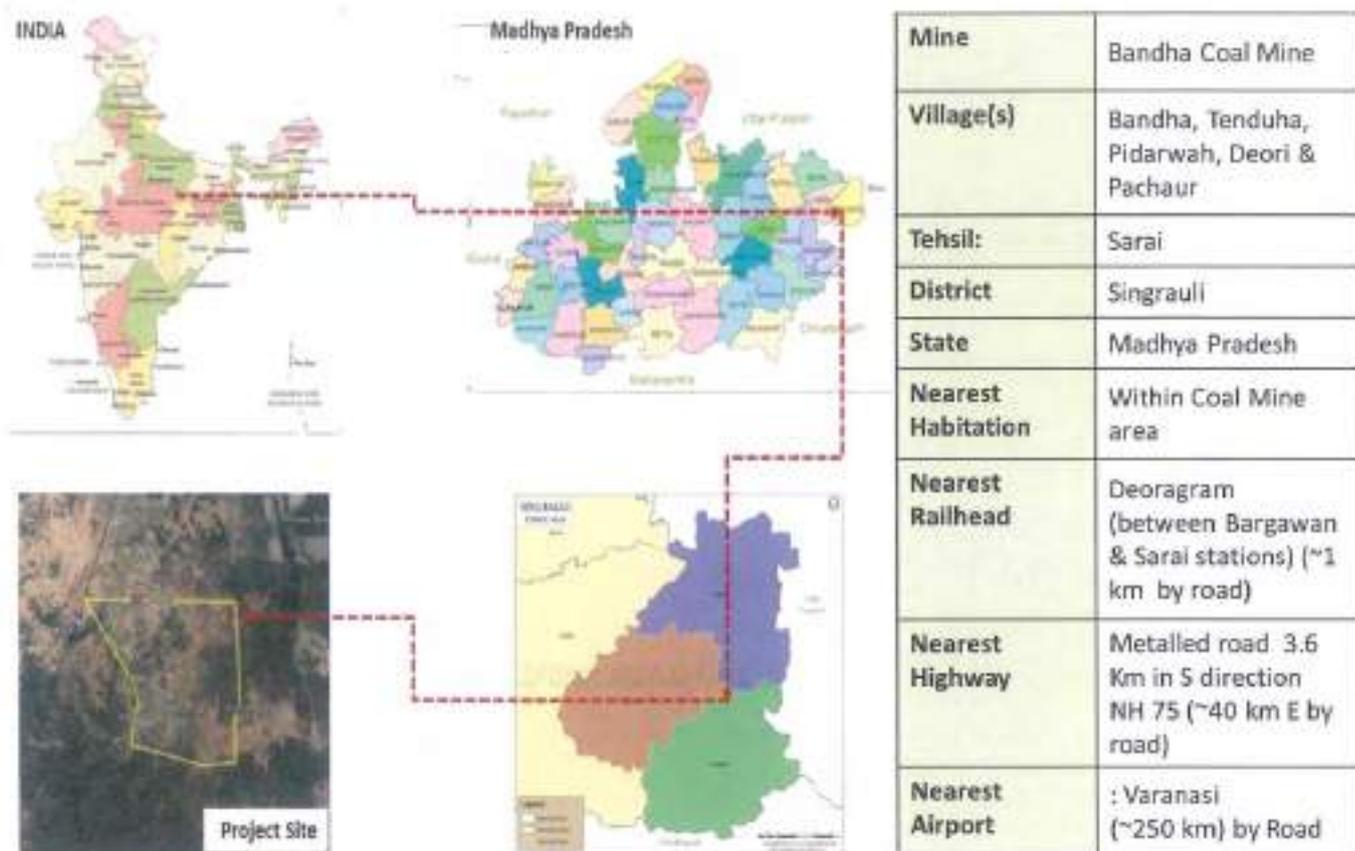


Figure 1: Location of the Mine

LAND USE PATTERN

Component wise breakup			
Sr.no	Component	Forest Land (ha.)	Non-Forest Land (ha.)
1	Railway Siding	0.54	15.46
2	Rationalisation area	77.684	0
3	External Dump	183.75	166.51
4	Safety Zone	7.48	6.532
5	Pit/Internal Dump	538.463	776.899
6	Infrastructure + Settling Pond	0	77.619
Total		807.917	1043.02
Grand Total (Forest+ Non-Forest)		1850.94 Ha	

4. Soil Type:

The Singrauli District is generally covered with Alluvial soil, red Sandy soil and yellow loamy Sandy soil, laterite soil and red loam soil. The district comprises sedimentary, crystalline and metamorphic rocks, weather into red soil. Similarly, the red colour of the laterite soil is more due to diffusion of Iron compounds rather than due to high proportion of Iron oxides. The alluvial soil is mostly restricted by along the banks of major rivers, whose thickness varies from few meters to 25 meters. Major soil type of the district are red soil, Alluvial & Lateritic soil.

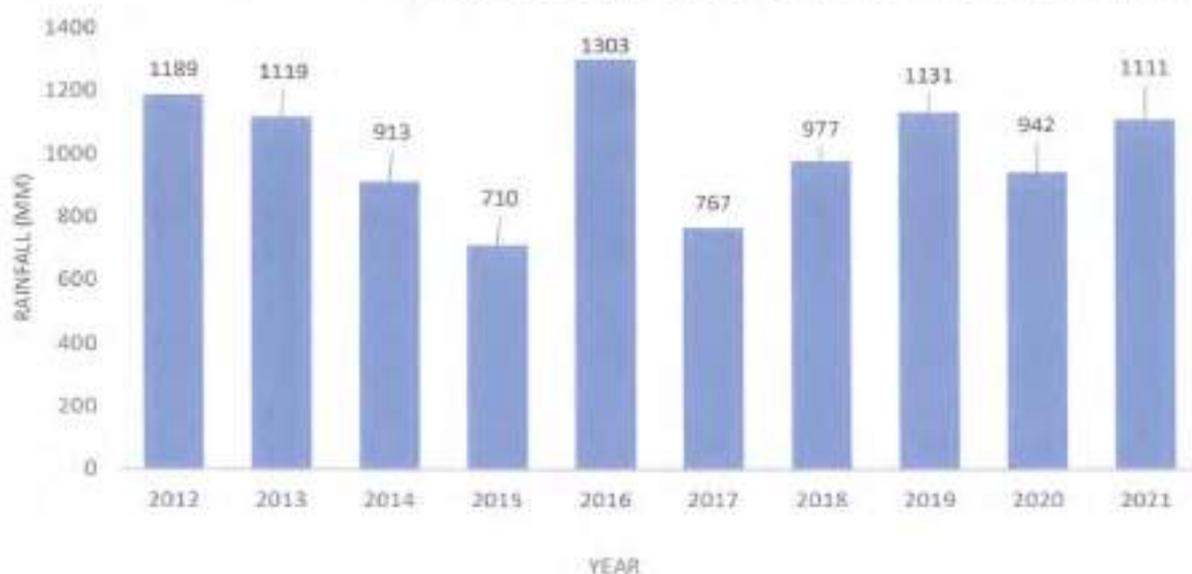
About 43% part of the Bandha block area is covered by forest land. The remaining 57% (approx.) part of the block area is used either as agriculture land or village land (as in habitat). The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The soil is ferruginous sandy soil, typical of the area.

5. Climate & Rainfall:

The area experiences a tropical to semi-tropical climate characterized by varying temperatures throughout the year. Minimum temperatures in December to January drop to around 4°C or lower, while maximum temperatures peak in May to June, reaching approximately 45°C or higher. Singrauli district receives an average annual rainfall of 1132.7 mm, with the majority falling from June to October. Relative humidity ranges from 19% in May to 85% in July and August.

During summer, regions at lower altitudes experience higher temperatures, occasionally affecting plantation efforts negatively. Winter generally remains pleasant, although certain low-lying areas near depressions and along the nalas can experience frost during cold spells, although infrequently.

AVERAGE RAINFALL DATA OF 10 YEARS (mm)



6. Drainage:

The drainages of the block are controlled by Bandha Nala and 1st and 2nd order streams of Kachanmuda Nala . Bandha Nala flows from south to north inside the block and then east to west near Ujheni village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village north-west of the block.

Bandha Coal Mine has dendritic to sub-dendritic drainage pattern. The nearest rivers are Mahan Nadi at 3.5 km in West, Rampa River at 700m in South, Sukhra Nadi at a distance of 5 Km in South-West, Hariya Nadi at a distance of 7.3 Km in West, Kanchan Nadi at a distance of 5.1 Km in NE of the block.

7. FACTORS RESPONSIBLE FOR SOIL EROSION

The mining activities and overburden dumps are the major source of drainage of soil and other substances for choking of any drainage system existing down below. The forms of erosion observed in this region include mainly rill and gully. The storm water runoffs from the uplands, mine faces and OB dump slope areas carry substantial quantity of solids in the lower order streamlets and choke the higher order streams. These lower order streamlets and gullies have high erosion capacity due to steep gradient and transportation of rock fragments with high velocity of the stream and deposition of same in the connecting high order streams due to velocity drop. Streams can also erode by undercutting their banks resulting in mass-wasting processes like slumps or slides. When the undercut material falls into the stream, the fragments are transported and deposited down below in the stream bed. The other mode of sediment transportation is very negligible.

8. OBJECTIVE OF THE SCHEME

The objectives are as follows: -

- i) To fulfil Condition No. V(a) of the Stage-I approval granted vide Letter No.F-1/841/2023/10-11/1710 dated 27.04.2023 of MoEF & CC, Government of India to undertake **"the user agency will take up programme for at least 50-meter green belt along the sides of the nallah from the intial years under the supervision of the state forest department and protection and conservation of nullahs will be ascertained"**.
- ii) To prevent erosion of top soil.
- iii) To prevent obstruction of existing natural water course.
- iv) To prevent overflow of eroded soils from the mining areas to the natural streams.

9. PROPOSED METHODOLOGY

To achieve the above objectives, it has been proposed to take up both biological works to prevent erosion of surface soil and water conservation of existing Bandha Nala.

10. MEASURES ALREADY ADOPTED

It is a fresh mining lease and no mining activities have been taken place so far. Hence all the measures proposed in this scheme shall be taken up after grant of Stage -II forest clearance, handing over other forest land by forest dept. & during the course of mining operation.

11. MEASURES PROPOSED

The details of proposed mitigative measures to minimize soil erosion and choking of streams in Mining Lease of Bandha OCP in favour of M/s. EMIL Mines and Minerals Pvt Ltd (EMMRL) over an area of 1850 hectare in village in Bandha, Tenduha, Pidarwah, Deori and Pachaur villages and Mohanban RF, Tehsil Sarai, Dist-Singrauli, MP are given below:

a) Biological measures

i) Plantation

In order to minimise soil erosion in the existing Bandha Nala, It proposed to do plantation 50m along both side of the nala totalling to area of 7 Ha.

The location-wise area details are given below.

Proposed Gap Plantation Area

Component	Area (Ha)
50 m both side of existing Bandha Nala	7
No of plants per Ha	400

The list of species proposed for plantation is as follows:

Sl. No.	Local Name	Botanical Name
1	Siris	<i>Albizzia lebbek</i>
2	Pakar	<i>Ficus racemosa</i>
3	Imli	<i>Tamarindus indica</i>
4	Neem	<i>Azadirachta indica</i>
5	Aam	<i>Mangifera indica</i>
6	Peepal	<i>Ficus religiosa</i>
7	Bargad	<i>Ficus bengalensis</i>
8	Cassia	<i>Cassia siamea</i>
9	Karanj	<i>Pongamia pinnata</i>
10	Chiraul	<i>Haloptelea integrifolia</i>
11	Kathal	<i>Artocarpus heterophyllus</i>
12	Palas	<i>Butea spp.</i>
13	Gular / Dumar	<i>Ficus glomerata</i>
12	Mahua	<i>Madhuca longifolia</i>
14	Jamun	<i>Syzygium cumini</i>
15	Baheda	<i>Terminalia bellirica</i>
16	Harra	<i>Terminalia chebula</i>
17	Sal	<i>Shorea robusta</i>
18	Sagaun	<i>Tectona Grandis</i>

It is proposed to go for block plantation @ 400 plants per Hectare. Planting shall be done during July in pre-dug pits of size 45 cm X 45 cm X 45 cm. A basal dose of N.P.K fertiliser shall be applied at the time of planting, besides mixing with insecticides to prevent termites & insects. Fruit bearing trees and bamboo rhizomes shall not be planted in close proximity. A minimum distance of 2.5 mt X 2.5 mt shall be maintained on every fourth plants in planting either of the species. Care should be taken to complete the planting during July while rains are still on during first or second week of July.

ii) Weeding

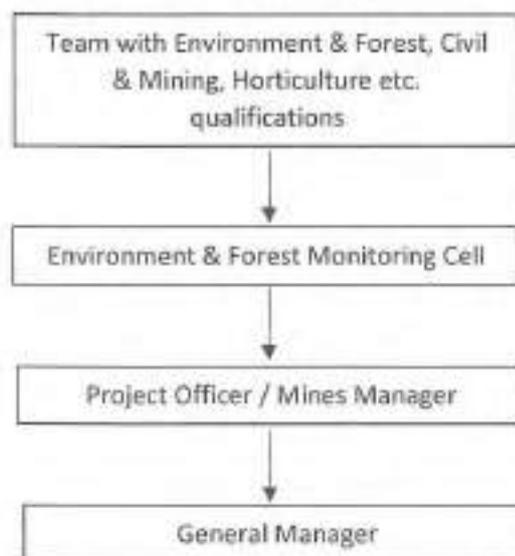
For establishment and better growth of the planted seedlings, timely weeding, soil working and manuring are necessary. It is proposed to carry out two weeding's, soil working and manuring during the first year and second year of plantation and one weeding and soil working during third year. During first year and second year, first weeding and manuring shall be carried out during August-September and the second one during September-October along with soil working after rains. First weeding shall be around the plants and the second one will be done in strip. In the third year the weeding will be done around the plants, which will be carried out during August. After each weeding, intensive soil working will be done around each plant at a radius of 0.5mtr, followed by manuring of @ 50 grams NPK per plant in ring form.

iii) Application of insecticides

The plantation site, after planting with good and healthy seedlings, may cause influx of insects, which usually eat and damage the tender leaves and shoots of the plants. To get rid of such insect attack, application of insecticides will be taken up in required doses at desired intervals. Spraying of insecticides shall be done preferably in a sunny day in the forenoon as per requirement.

12. EXECUTING AGENCY

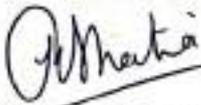
The work will be executed by the User Agency i.e. M/s EMMRL through dedicated departments manned by technically qualified persons with outsourced man and machinery as and when required. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.



Cost Estimation

Sr.No.	Description of Work	Cost (Rs)	Remarks	Annexure
1	Gap Plantation @ 400 sapling in 7 Ha with 11-year scheme		Cost of plantation already included in mitigative measures and choking of streams in condition no- XV (a) as this area is overlapping with Plantation area given in compliance XV (a)	Annexure-1
	Sub Total			
	Escalation 20%			
	Total			

Note: The above expenses have been included in the Approved Mining Plan and Mine Closure Plan under biological reclamation and plantation.



Project Head, EMMRL, Bandha Coal Block

Annexure-1: Gap Plantation 50 m along both side of existing Bandha Nala

Goswara Ideal Plantation (Area - 7 Ha)					
Year		Man-days	Rate per man-day	Amount (INR)	Amount per Ha (INR)
1st	2025-26	5120.66	414	2119953.24	23042.97
2nd	2026-27	1175.11	439	515871.36	5607.30
3rd	2027-28	790.93	465	367781.89	3997.63
4th	2028-29	951.93	493	469300.90	5101.10
5th	2029-30	543.64	523	284323.72	3090.48
6th	2030-31	409.84	554	227051.36	2467.95
7th	2031-32	407.84	587	239402.08	2602.20
8th	2032-33	372.84	622	231906.48	2520.72
9th	2033-34	372.84	659	245701.56	2670.67
10th	2034-35	405.84	699	283682.16	3083.50
11th	2035-36	394.84	741	292576.44	3180.18
		10946		5277551	57365

First Year Scheme (2025-26) – Rate per Man-Day 414

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Survey & Demarcation (Ha)	7	Ha	0.45	per Ha	3.15	1304	Job Rate
2	Construction of Pucca Munara	0	Munara	16	Munara	0	0	On basis of nos.
3	Demarcation of Treatment-type area (including materials) in Ha	7	Ha	1		7	2898	Approximate
4	Cleaning of the area (Ha)	7	Ha	4	per Ha	28	11592	Job Rate
5	Lantana removal work as required (Moderate)	1.75	Ha	12.5	per Ha	21.875	9056.25	Job Rate
6	Fencing of plantation area with 1.8 m height, 75 mm x 75 mm mesh size, 12-gauge chain-link fencing, along with cement poles at 2.50 m intervals. Additionally, three lines of barbed wire (6 m per kg) will also be installed. Cement poles will be embedded in 75 cm x 30 cm x 45 cm pits using 1:2:4 cement concrete	1400		2.4	Rmt	3360	1391040	Approximate
7	Pit digging for staking, and alignment	2800	Pits	2.5	per thousand	7	2898	Job Rate
8	Pit size: 45x45x45 cm for Plantation	2800	Pits	5	per hundred	140	57960	Job Rate
9	Replacement of soil in pits – 30% of the pit volume	76.5	cu. m.	1.5	per cu. m.	114.8175	47534.45	Market Rate
10	Application of cow dung manure in pits – 15% of the pit volume	38.3	cu. m.	3	per cu. m.	114.8175	47534.45	Market Rate
11	Preparation and mixing of fertile soil, local soil, and organic manure for filling pits	2800	pits	1.5	100	42	17388	Job Rate
12	Construction of one hut		L.S.			120	49680	Estimated
13	Construction of an approach road along with an inspection path		L.S.	1.5	km	364	150696	Estimated
14	Other expenses (signboards, paint, lime, etc.)					98	40572	Estimated

	Sub-Total					4420.66	1830153	
15	Soil & Moisture Conservation Activities (25%)	2800	Ha	25	1	700	289800	
	Grand Total					5120.66	2119953	

Second Year Scheme (2026-27) - Rate per Man-day: 439

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Plantation of Saplings						0	
	No. of Saplings for first plantation	2800		0.03546	15 per sapling	99.288	43587.432	Market Rate
	No. for replacement of dead saplings	560		0.03546	15 per sapling	19.8576	8717.4864	Market Rate
2	Transportation of Saplings (Nos.)							
	By Truck/Tractor	3360	saplings	1.5	per 100	50.4	22125.6	Job Rate
	By Manual Labour (1 km)	3360	saplings	0.4	per 100	13.44	5900.16	Job Rate
3	Lantana removal operation	7	Ha	8	per Ha	56	24584	Job Rate
4	Plantation in pit of size 45 x 45 x 45 cm	2800	Pits	1.8	per 100	50.4	22125.6	Job Rate
5	Replacement of Dead Saplings (20%)	560	saplings	1.8	per 100	10.08	4425.12	Job Rate
6	First weeding in Saplings	2800		1.25	per 100	35	15365	Job Rate
7	Second weeding in Saplings	2800		1	per 100	28	12292	Job Rate
8	Third weeding in Saplings	2800		1	per 100	28	12292	Job Rate
9	Application of fertilizers & pesticides	2800		0.6	per 100	16.8	7375.2	Job Rate
10	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	2058.91	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	1382.85	Job Rate
11	Security: 1 labour for 9 months	9	months			270	118530	Estimated
12	First Irrigation	2800			L.S.	200	87800	Estimated
13	Second Irrigation	2800			L.S.	200	87800	Estimated
14	Other expenses (pesticides, fertilizers & other misc items, etc.)					90	39510	Estimated
	Grand Total					1175.1056	515871.3584	

Third Year Scheme (2027-28) - Rate per Man-day: 465

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Plantation Expense (for replacing 10% of Saplings)	280		0.03546	INR 10 per sapling	9.9288	4616.892	Market Rate
2	Transportation of Saplings (Nos.)							
	By Truck/Tractor	280		1.5	per 100	4.2	1953	Job Rate
	By Manual Labour (1 km)	280		0.4	per 100	1.12	520.8	Job Rate
3	Repair work of chain-link fencing					20	9300	Estimated
4	Digging & replacement of 10% of Dead Saplings	280	saplings	1.8	per 100	5.04	2343.6	Job Rate
5	First weeding in Saplings	2800		1.25	per 100	35	16275	Job Rate
6	Second weeding in Saplings	2800		1	per 100	28	13020	Job Rate
7	Third weeding in Saplings	2800		1	per 100	28	13020	Job Rate
8	Application of fertilizers & pesticides	2800		0.6	per 100	16.8	7812	Job Rate
9	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	2180.85	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	1464.75	Job Rate
10	Security: 1 labour for 12 months	12	months			360	167400	Estimated
11	Irrigation as per availability	2800			L.S.	200	93000	Estimated
12	Other expenses (pesticides, fertilizers & other misc items, etc.)					75	34875	Estimated
	Grand Total					790.9288	367781.892	

Fourth Year Scheme (2028-29) - Rate per Man-day: 493

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Plantation Expense (for replacing 10% of Saplings)	280		0.03546	INR 10 per sapling	9.9288	4894.8984	Market Rate
2	Transportation of Saplings (Nos.)							
	By Truck/Tractor	280		1.5	per 100	4.2	2070.6	Job Rate
	By Manual Labour (1 km)	280		0.4	per 100	1.12	552.16	Job Rate
3	Digging & replacement of 10% of Dead Saplings	280	saplings	1.8	per 100	5.04	2484.72	Job Rate
4	First weeding in Saplings	2800		1.25	per 100	35	17255	Job Rate
5	Second weeding in Saplings	2800		1	per 100	28	13804	Job Rate
6	Application of fertilizers & pesticides	36800		0.6	per 100	220.8	108854.4	Job Rate
7	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	2312.17	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	1552.95	Job Rate
8	Security: 1 labour for 12 months	12	months			360	177480	Estimated
9	Irrigation as per availability	2800			L.S.	200	98600	Estimated
10	Other expenses (pesticides, fertilizers & other misc items, etc.)					80	39440	Estimated
	Grand Total					952	469301	

Fifth Year Scheme (2029-30) - Rate per Man-day: 523

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Repair work of chain-link fencing					40	20920	Estimated
2	First weeding in Saplings	2800		1.25	per 100	35	18305	Job Rate
3	Second weeding in Saplings	2800		1	per 100	28	14644	Job Rate

4	Application of fertilizers & pesticides	2800		0.6	per 100	16.8	8786.4	Job Rate
5	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	2452.87	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	1647.45	Job Rate
6	Security: 1 labour for 12 months	12	months			360	188280	Estimated
7	Other expenses (pesticides, fertilizers & other misc items, etc.)					56	29288	Estimated
	Grand Total					543.64	284324	

Sixth Year Scheme (2030-31) - Rate per Man-day: 554

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	2598.26	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	1745.1	Job Rate
2	Security: 1 labour for 12 months	12	months			360	199440	Estimated
3	Other expenses					42	23268	Estimated
	Grand Total					410	227051	

Seventh Year Scheme (2031-32) - Rate per Man-day: 587

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	2753.03	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	1849.05	Job Rate
2	Security: 1 labour for 12 months	12	months			360	211320	Estimated
3	Other expenses					40	23480	Estimated
	Grand Total					407.84	239402.08	

Eighth Year Scheme (2032-33) - Rate per Man-day: 622

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	2917.18	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	1959.3	Job Rate
2	Secuirty: 1 labour for 12 months	12	months			360	223920	Estimated
3	Other expenses					5	3110	Estimated
	Grand Total					373	231906	

Ninth Year Scheme (2033-34) - Rate per Man-day: 659

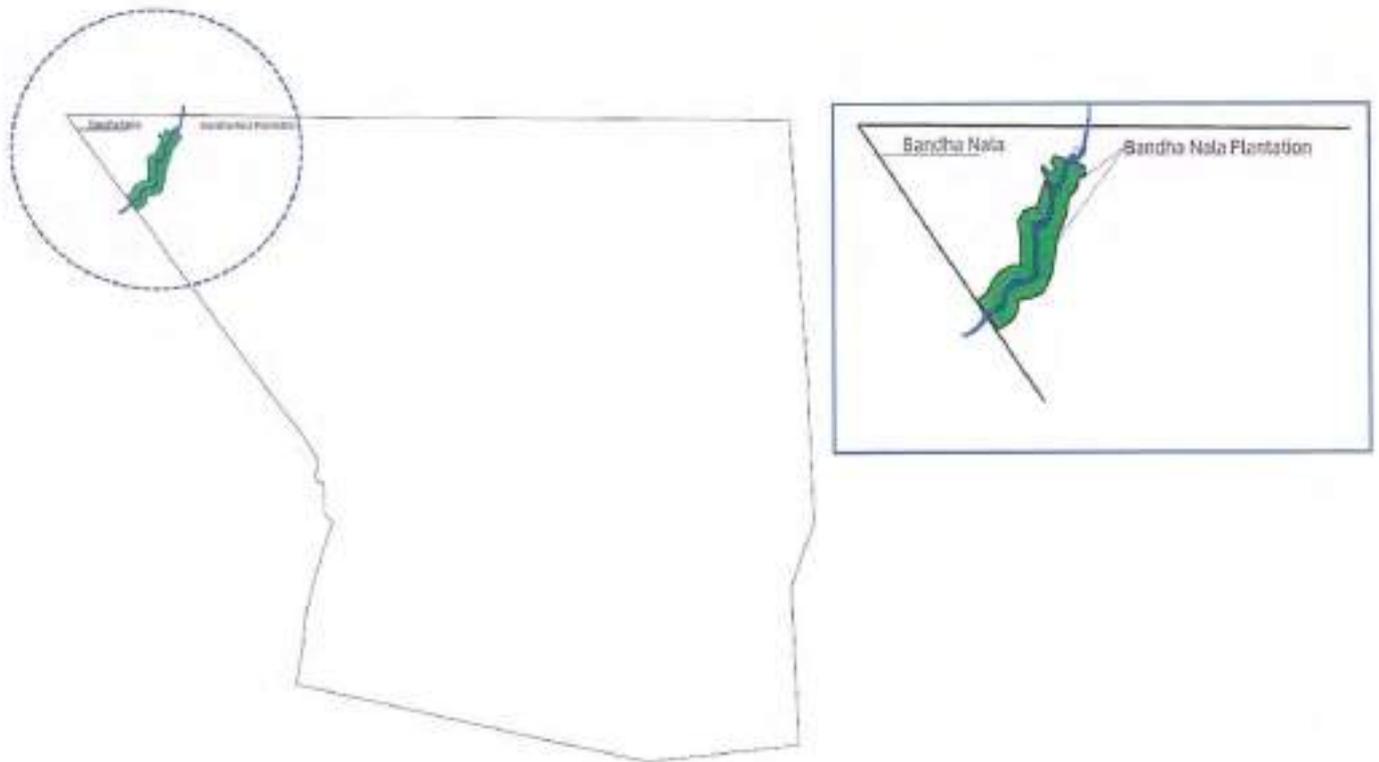
Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	3090.71	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	2075.85	Job Rate
2	Secuirty: 1 labour for 12 months	12	months			360	237240	Estimated
3	Other expenses					5	3295	Estimated
	Grand Total					373	245702	

Tenth Year Scheme (2034-35) - Rate per Man-day: 699

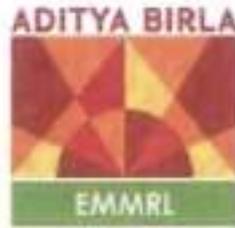
Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	3278.31	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	2201.85	Job Rate
2	Secuirty: 1 labour for 12 months	12	months			360	251640	Estimated
3	Other expenses					38	26562	Estimated
	Grand Total					406	283682	

Eleventh Year Scheme (2035-36) - Rate per Man-day: 741

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	1400	m	3.35	per km	4.69	3475.29	Job Rate
	3.0 m wide	1400	m	2.25	per km	3.15	2334.15	Job Rate
2	Security: 1 labour for 12 months	12	months			360	266760	Estimated
3	Other expenses					27	20007	Estimated
	Grand Total					395	292576	



PLAN SHOWING 50 m PLANTATION BOTH SIDE OF BANDHA NALA

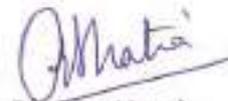


Annexure-9

UNDERTAKING THE USER AGENCY WILL TAKE UP PROGRAMME FOR AT LEAST 50 METER GREEN BELT ALONG THE SIDES OF THE NALLAH FROM THE INTIAL YEARS UNDER THE SUPERVISION OF THE STATE FOREST DEPARTMENT AND PROTECTION AND CONSERVATION OF NALLAHS WILL BE ASCERTAINED

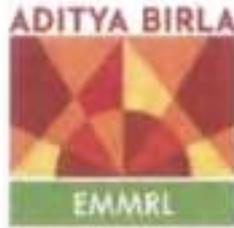
In Compliance to **condition no-v** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to take up program for at least 50-meter green belt along the sides of the nallah from the initial years under the supervision of the state forest department and protection and conservation of nallah will be ascertained.


Project Head

EMMRL Bandha Coal Block



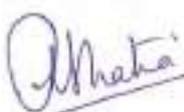


Annexure-10

UNDERTAKING AS PER THE COMPONENT WISE BREAKUP, THE TOTAL RATIONALIZED AREA IS MENTIONED AS 77.684 HA OVER THE FOREST LAND. IN THIS REGARD, THE USER AGENCY SHALL SUBMIT AN UNDERTAKING THAT THE SAME SHALL NOT BE USED FOR ANY NON-SITE SPECIFIC ACTIVITY OR ADDITIONAL INFRASTRUCTURE

In Compliance to condition no-vi of FC Stage-I clearance granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake that, as per the component-wise breakup, the total rationalized area is mentioned as 77.684 ha over the forest land. In this regard, I further affirm that the said area shall not be used for any non-site-specific activity or additional infrastructure.


Project Head



EMMRL Bandha Coal Block.

मध्यप्रदेश ग्रामीण सड़क विकास प्राधिकरण

(म.प्र.शासन, पंचायत एवं ग्रामीण विकास विभाग के अधीन)

तृतीय तल, विकास भवन, अरेरा हिल्स भोपाल

क्र. 1064/22/वि-12/गारूप्र/ Maint-I/25 भोपाल, दिनांक 6/02/2025

प्रति,

Project Head,
M/S EMIL Mines and Mineral Resources Limited (EMMRL),
Industry House, 18th Floor, 10 Camac Street,
Kolkata-700017

विषय:—Diversion of Existing PMGSY Road crossing through Bandha coal Block required for commencement of Mining Activity.

- संदर्भ:—1. आपका पत्र EMMRL/BANDHA/ROAD/2024-25/58 दिनांक 23.12.2024।
2. महाप्रबंधक बैठन का पत्र क्र. 24 दिनांक 09.01.2025।

—0—

उपरोक्त विषयांतर्गत आपके पत्र में उल्लेखित किया गया है कि भारत सरकार द्वारा कोल ब्लॉक बंधा का आवंटन M/S EMIL Mines and Mineral Resources Limited (EMMRL), को किया गया है जिससे जिला सिंगरौली के ग्राम बंधा, तेदुहा, पिडरवाह, देवरी एवं पचौर प्रभावित है। इन ग्रामों हेतु निर्मित प्रधानमंत्री ग्राम सड़क योजना के मार्गों में से कोल ब्लॉक से प्रभावित मार्ग/आंशिक मार्ग के स्थान पर ग्रामों को सम्पर्कता यथावत जारी रखने हेतु आपके द्वारा परिवर्तित एकरेखण में मार्ग निर्माण की अनुमति संदर्भित पत्र क्र-1 से चाही गई है।

उक्त के संबंध में दिनांक 19.12.2024 को मुख्यालय पर कंपनी प्रतिनिधि एवं महाप्रबंधक पीआईयू बैठके के साथ हुई संयुक्त बैठक में लिये गये निर्णय के अनुसार —

- प्रभावित ग्रामों के विस्थापन प्रस्ताव एवं संक्षम अधिकारी का स्वीकृति पत्र।
- परिवर्तित एकरेखण का तकनीकी, वित्तीय एवं संधारण प्रस्ताव एवं एस.टी.ए से अनुमोदित डी.पी.आर।
- खनन के संचालन के दौरान प्रधानमंत्री ग्राम सड़क योजना मार्गों से मशीनरी का मूवमेन्ट प्लान एवं प्रभावित मार्गों का तकनीकी एवं वित्तीय प्रस्ताव।
- कंपनी एवं प्राधिकरण के मध्य प्रातिप्रादित MOU का ड्राफ्ट।

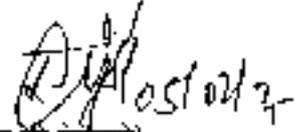
उक्त दस्तावेजों के प्रस्तुत करने के निर्णय के पालन में महाप्रबंधक बैठन का संदर्भित पत्र क्र-2 प्राप्त हुआ है जिसके साथ संक्षम अधिकारी से स्वीकृत विस्थापन प्रस्ताव, उत्खनन से प्रभावित 03 मार्गों का अधोसंरचना मूल्य प्रेषित किया गया है साथ ही आपके द्वारा प्रस्तुत Undertaking जिसमें उल्लेखित है कि परिवर्तित एकरेखण के निर्माण में MPRRDA के निर्देशान में सभी तकनीकी मापदण्डों का पालन करते हुए परिवर्तित एकरेखण मार्ग की संपूर्ण लागत एवं संधारण का व्यय कंपनी द्वारा वहन किया जावेगा। मशीनरी मूवमेन्ट प्लान के संबंध में आपके द्वारा Undertaking में उल्लेखित किया गया है कि मशीनरी का मूवमेन्ट किये जाने के पूर्व संक्षम प्राधिकारी से अनुमति प्राप्त की जावेगी। तत्समय प्रतिप्रादित MOU की शर्तों के अनुरूप मार्ग का सुदृणीकरण एवं संधारण का व्यय कंपनी द्वारा वहन किया जावेगा। MPRRDA से In-principle approval प्राप्त होने के पश्चात परिवर्तित एकरेखण मार्ग की DPR एवं ड्राफ्ट MOU प्रस्तुत किया जावेगा।

निरन्तर.....

उपरोक्तानुसार प्राप्त Undertaking एवं महाप्रबंधक बैङ्कन के अनुसार परिवर्तित एकरेखण के निर्माण से दिस्थापित/प्रभावित प्राप्ते की सम्पत्तियां यथावत रहेंगी एवं परिवर्तित एकरेखण निर्माण का व्यय कंपनी द्वारा वहन किया जावेगा एवं खनन से प्रभावित मार्गों का अधोसंरचना मुख्य कंपनी द्वारा जमा किया जाना है। कंपनी के उपयोग में आने वाले मार्गों का सुदृणीकरण एवं संधारण कंपनी द्वारा किया जावेगा एवं कंपनी द्वारा कोल ब्लॉक के संचालन के पूर्व फाइनल अनुमति प्राप्त की जावेगी तात्पश्चात् MOU का ड्राफ्ट प्रस्तुत होगा।

अतः उपरोक्त तथ्यों के दृष्टिगत संदर्भित पत्र क्र-1 से वांछित परिवर्तित एकरेखण की सैद्धान्तिक अनुमति प्रदाय की जाती है।

(मुख्य कार्यपालन अधिकारी द्वारा अनुमोदित)



(एस.डी.पेंडसे)

मुख्य महाप्रबंधक-संधारण
म.प्र. ग्रामीण सड़क विकास प्राधिकरण,
भोपाल

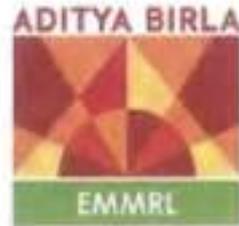
पृ.क्र. 1865 / वि-12/ग्रामप्रा/Maint-1/25 भोपाल.
प्रतिरिपि

दिनांक 16/02/2025

1. मुख्य महाप्रबंधक, म.प्र. ग्रामीण सड़क विकास प्राधिकरण, रीता, धी ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु।
2. महाप्रबंधक, म.प्र. ग्रामीण सड़क विकास प्राधिकरण, बैङ्कन धी ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु।



मुख्य महाप्रबंधक-संधारण
म.प्र. ग्रामीण सड़क विकास प्राधिकरण,
भोपाल

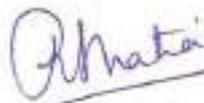


Annexure-12

UNDERTAKING SATELLITE IMAGERY SHOWS ENCROACHMENT IN FEW PATCHES PROPOSED FOR CA FOR WHICH THE STATE GOVT. INFORMED THAT THE LAND WILL BE HANDED OVER TO THE FOREST DEPARTMENT FREE FROM ALL ENCUMBRANCES PRIOR TO STAGE-II APPROVAL. THE STATEGOVT. SHALL SUBMIT THE SITE SUITABILITYCERTIFICATE FOR PROPOSED CA LAND FREE 8-17/2023-FC I/83491/2024 FROM ALL ENCUMBRANCES FROM THE CONCERNED DFO BEFORE STAGE-II APPROVAL

In Compliance to **condition no-viii** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake that all the identified Compensatory Afforestation (CA) land, measuring 807.917 Ha, will be handed over to the Forest Department free from all encroachments prior to the grant of Final Forest Clearance by State.



Project Head



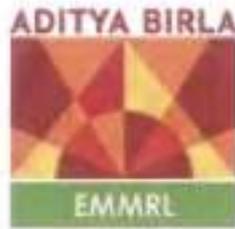
EMMRL Bandha Coal Block

EMIL Mines And Mineral Resources Limited

Regd. Office: Industry House, 18th Floor, 10, Camac Street, Kolkata 700 017, India

CIN: U14290WB2020PLC236717 | T: +91 33 4455 5500 | F: +91 33 4455 5537

E: emmrl.registered@adityabirla.com

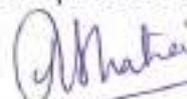


Annexure-13

UNDERTAKING THE USER AGENCY SHALL UNDERTAKE MINING IN A PHASED MANNER AFTER TAKING DUE CARE FOR RECLAMATION OF THE MINED OUT AREA. THE USER AGENCY SHALL PREPARE A DETAILED PLAN FOR 45 YEARS/LIFE OF PROJECT AS PER MINING PLAN, CLEARLY LINKING THE PROGRESS OF MINING AND FELLING OF THE TREES. FELLING OF TREES SHALL BE DONE, WHEN IT IS ABSOLUTELY NECESSARY IN PHASE-WISE MANNER IN THE AREAS WHICH BECOME DUE FOR MINING AS PER MINING PLAN. THE CONCURRENT RECLAMATION PLAN AS PER THE APPROVED MINING PLAN SHALL BE EXECUTED BY THE USER AGENCY FROM THE VERY FIRST YEAR, AND AN ANNUAL REPORT ON IMPLEMENTATION THEREOF SHALL BE SUBMITTED TO THE NODAL OFFICER, VAN (SANRAKSHAN EVAM SAMVARDHAN) ADHINIYAM, 1980, IN THE CONCERNED STATE GOVERNMENT AND THE CONCERNED REGIONAL OFFICE OF THE MINISTRY. IF IT IS FOUND FROM THE ANNUAL REPORT THAT THE ACTIVITIES INDICATED IN THE CONCURRENT RECLAMATION PLAN ARE NOT BEING EXECUTED BY THE USER AGENCY, THE NODAL OFFICER OR THE CHIEF CONSERVATOR OF FORESTS (CENTRAL) MAY DIRECT THAT THE MINING ACTIVITIES SHALL REMAIN SUSPENDED TILL SUCH TIME, SUCH RECLAMATION ACTIVITIES ARE SATISFACTORILY EXECUTED.

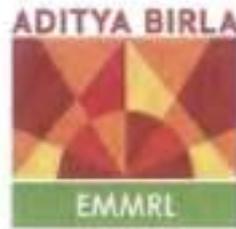
In Compliance to **condition no- xi** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to do mining in a phased manner after taking due care for reclamation of the mined out area. The User Agency shall prepare a detailed plan for 45 years/life of project as per mining plan, clearly linking the progress of mining and felling of the trees. Felling of trees shall be done, when it is absolutely necessary in phase-wise manner in the areas which become due for mining as per mining plan. The concurrent Reclamation Plan as per the approved Mining Plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.


Project Head



EMMRL Bandha Coal Block

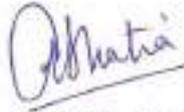


Annexure-14

UNDERTAKING THE USER AGENCY SHALL PREPARE A SCHEDULE FOR SURRENDER OF THE MINED OUT AND RECLAIMED FOREST LAND IN ACCORDANCE WITH EXISTING MINING PLAN AND SUBMIT THE SAME ALONG WITH AN UNDERTAKING TO SURRENDER THE MINED OUT AND RECLAIMED FOREST LAND AS PER SUCH SCHEDULE TO THE MOEF&CC BEFORE GRANT OF 'FINAL' APPROVAL UNDER THE ADHINIYAM FOR DIVERSION OF THE SAID FOREST LAND.

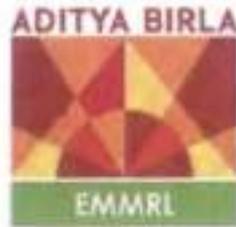
In Compliance to **condition no-xii** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to surrender the mined-out and reclaimed forest land as per the approved mining plan and mine closure plan after completion of mining activities.


Project Head



EMMRL Bandha Coal Block

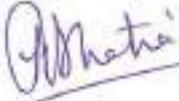


Annexure-15

UNDERTAKING THE REHABILITATED FOREST AREA AFTER CLOSURE OF MINING OPERATIONS SHALL BE HANDED OVER TO THE STATE FOREST DEPARTMENT FOR SUSTAINABLE FOREST MANAGEMENT IN THE FUTURE;

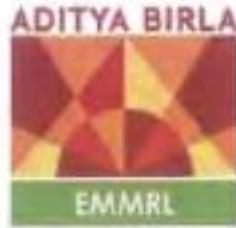
In Compliance to **condition no-xiii** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake that the rehabilitated forest area after closure of mining operations will be handed over to the State Forest Department for sustainable forest management in the future.


Project Head



EMMRL Bandha Coal Block

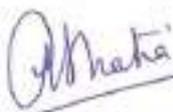


Annexure-16

UNDERTAKING USER AGENCY SHALL ENSURE DEMARCATION OF SAFETY ZONE (7.5 METER STRIP ALL ALONG THE INNER BOUNDARY OF THE MINING LEASE AREA), AND ITS FENCING, PROTECTION AND REGENERATION BY ERECTING ADEQUATE NUMBER OF 6 FEET HIGH RCC BOUNDARY PILLARS INSCRIBED WITH DGPS COORDINATES WITH BARBED WIRE FENCING AND DEPLOYING ADEQUATE NUMBER OF WATCHERS UNDER THE SUPERVISION OF THE STATE FOREST DEPARTMENT

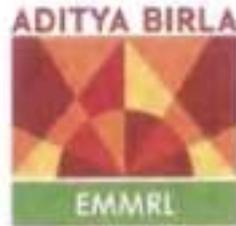
In Compliance to **condition no-xiv (a)** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to ensure demarcation of safety zone (7.5-meter strip all along the inner boundary of the mining lease area), and its fencing, protection, and regeneration by erecting adequate number of 6 feet high RCC boundary pillars inscribed with DGPS coordinates with barbed wire fencing and deploying adequate number of watchers under the supervision of the State Forest Department.


Project Head



EMMRL Bandha Coal Block

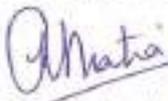


Annexure-17

UNDERTAKING BOUNDARY OF THE SAFETY ZONE OF THE MINING LEASE, ADJACENT TO HABITATION/ROADS, SHOULD BE PROPERLY FENCED BY THE USER AGENCY

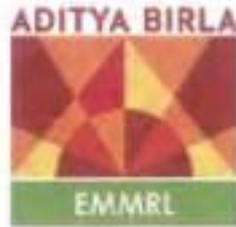
In Compliance to **condition no-xiv (b)** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake that the boundary of the safety zone of the mining lease, adjacent to habitation/roads, will be properly fenced.


Project Head



EMMRL Bandha Coal Block

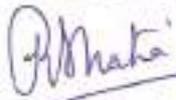


Annexure- 18

UNDERTAKING SAFETY ZONE SHALL BE MAINTAINED AS GREEN BELT AROUND MINING LEASE AND TO ENSURE DENSE CANOPY IN THE AREA, REGENERATION SHALL BE TAKEN UP IN THIS AREA BY THE USER AGENCY AT PROJECT COST UNDER THE SUPERVISION OF THE STATE FOREST DEPARTMENT

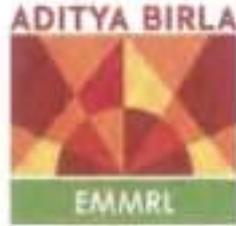
In Compliance to **condition no-xiv (c)** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to maintain the safety zone as a green belt around the mining lease and ensure dense canopy development through regeneration in this area. The regeneration will be carried out at the project's cost under the supervision of the State Forest Department.


Project Head



EMMRL Bandha Coal Block

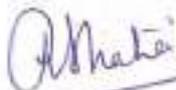


Annexure-19

UNDERTAKING THE STATE GOVERNMENT AND THE USER AGENCY SHALL ENSURE THAT SAFETY ZONE IS MAINTAINED AS PER THE PRESCRIBED NORMS

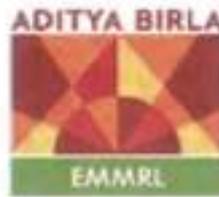
In Compliance to **condition no-xiv (d)** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to ensure that the safety zone will be maintained as per the prescribed norms, in coordination with the State Government


Project Head



EMMRL Bandha Coal Block



Bandha Coal Project

Scheme

For

MITIGATIVE MEASURES TO MINIMIZE SOIL EROSION AND CHOKING OF STREAM SHALL BE IMPLEMENTED WITHIN A PERIOD OF THREE YEARS WITH EFFECT FROM THE ISSUE OF 'FINAL' APPROVAL IN ACCORDANCE WITH THE APPROVED PLAN/SCHEME IN CONSULTATION WITH THE STATE FOREST DEPARTMENT

in compliance

with

Condition No. XV (a) of

Stage-I approval granted vide

Letter No.8-17/2023-FC, Dated- 01.10.2024

of Govt. of India, Ministry of Environment, Forests

& Climate Change, New Delhi.

for

Diversion of 807.917 Ha. (Instead of 785.49 Ha)

of Forest Land within 1850.94 Ha of ML area of Bandha OCP

for Non forestry use U/s-2 (ii) of FC Act-1980

in villages Bandha, Pidarwaha, Tenduha , Deori and Pachaur

In Sarai Tehsil

Singrauli District, Madhya Pradesh (MP)

M/s. EMIL Mines And Mineral Resources Limited (EMMRL)

SCHEME FOR MITIGATIVE MEASURES TO MINIMIZE SOIL EROSION AND CHOKING OF STREAM SHALL BE IMPLEMENTED WITHIN A PERIOD OF THREE YEARS WITH EFFECT FROM THE ISSUE OF 'FINAL' APPROVAL IN ACCORDANCE WITH THE APPROVED PLAN/SCHEME IN CONSULTATION WITH THE STATE FOREST DEPARTMENT.

1. INTRODUCTION

Bandha Open Cast Coal Mine is a Greenfield opencast mining project spread over a lease area of 1850 Ha. in Bandha, Tenduha, Pidarwah, Deori and Pachaur villages and Mohanban RF, Tehsil Sarai, Dist-Singrauli, MP.

Ministry of Coal, Government of India has allotted this coal block in favour of M/s. EMIL Mines and Minerals Pvt Ltd (EMMRL) vide allotment order no. NA-104/5/2020-NA dated 03rd March 2021.

As per approved Mining Plan and Mine Closure Plan, the mine life is 45 years. Out of total 1850 Ha. of Mining Lease area, total forest land involved in 807.917 Ha out of which 804.367 ha forest land in RF-389, 390, 290, 291, 292, 293, 294, 296, 319, 320, 391, 392 & PF-316, 317 of Forest Range Waidhan/ Sarai East and 3.55 ha Revenue Forest in various Khasras.

M/s. EMMRL submitted the Forest Diversion proposal to obtain Forest Clearance from MoEF & CC, Government of India for 807.917 Ha. of forest land U/s 2(ii) of the Forest (Conservation) Act 1980.

The Stage-I Forest Clearance over 807.917 ha of Forest Land Under Section- 2 (ii) of the Forest (Conservation) Act, 1980 has been granted by MoEF & CC, Government of India vide their Letter No. 8-06/2023-FC, dated 05.12.2023, where in it has been stipulated as per **Condition No. XV (a) for undertaking Mitigative measures to minimize soil erosion and choking of stream shall be implemented within a period of three year with effect from the issue of 'Final' approval in accordance with the approved Plan/Scheme in consultation with the State Forest Department.**

2. LOCATION

The mining lease area is covered in the Survey of India toposheet no.63 I/8 (R.F. 150000) and open series toposheet nos. G-44W8 (M2, M4, N2, S1, S2, R1, R3, R4) (R.F. 15,000). and situated between the Lat. 23°46'37" N & 24°13'17" N and Long. 81°45'24" E & 82°47'50" E. The above ML area comes within the villages Bandha, Tenduha, Pidarwah, Deori & Pachaur, in Tehsil Sarai, Dist.: Singrauli, MP.

3. TOPOGRAPHY

The Bandha coal block, situated in the northeastern part of the main basin, has been explored through boreholes revealing intersections from the Raniganj to Barakar formations. Geomorphologically, the district is characterized by hilly terrain, predominantly covered by the Kaimur hilly ranges, which divide the area into three physiographic divisions: the northeastern Kaimur ranges, central hill ranges, and southern hilly ranges.

About 43 percent of the Bandha block area is covered by forest land. The remaining approx. 57 percent of the block area is tenancy land and govt. Land. The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the block varies from 405.00m to 475.00m above MSL.

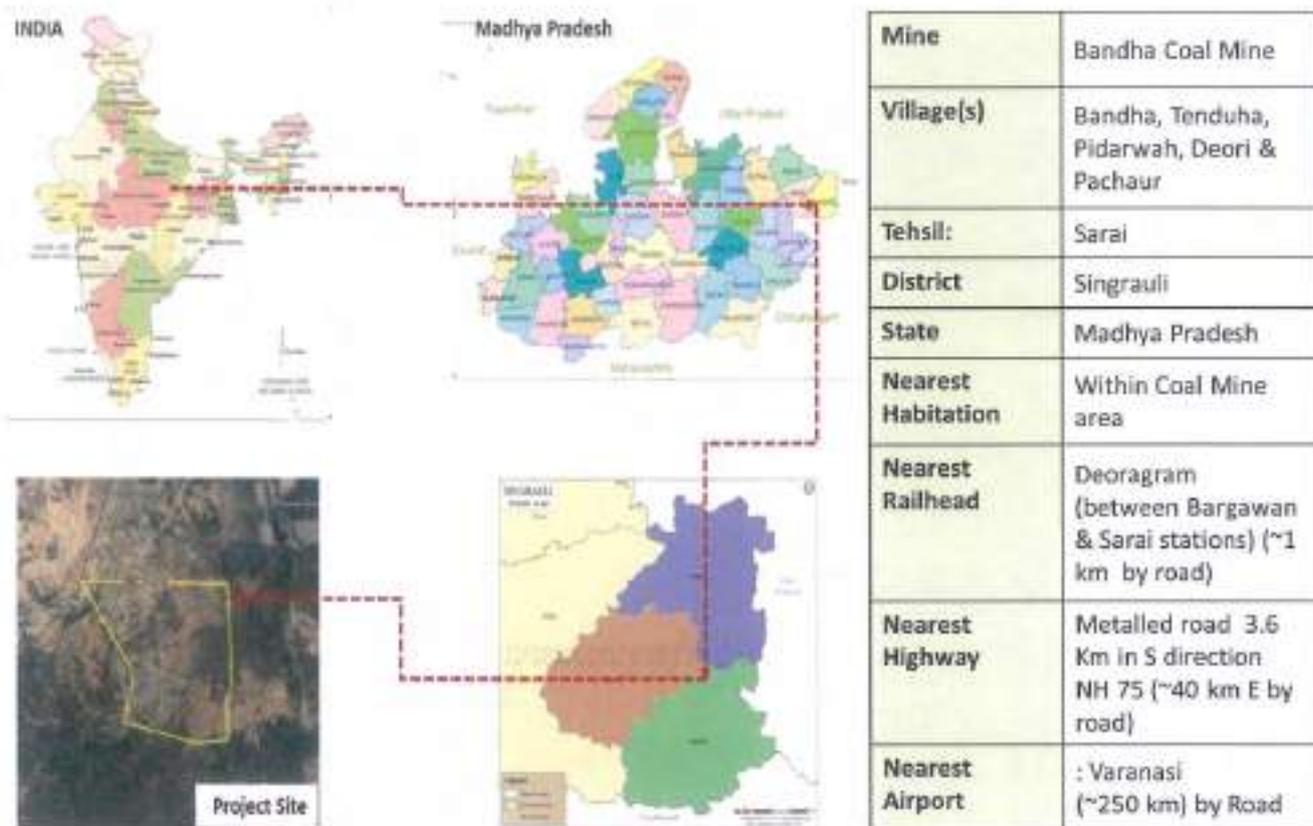


Figure 1: Location of the Mine

LAND USE PATTERN

Component wise breakup			
Sr.no	Component	Forest Land (ha.)	Non-Forest Land (ha.)
1	Railway Siding	0.54	15.46
2	Rationalisation area	77.684	0
3	External Dump	183.75	166.51
4	Safety Zone	7.48	6.532
5	Pit/Internal Dump	538.463	776.899
6	Infrastructure + Settling Pond	0	77.619
Total		807.917	1043.02
Grand Total (Forest+ Non-Forest)		1850.94 Ha	

4. Soil Type:

The Singrauli District is generally covered with Alluvial soil, red Sandy soil and yellow loamy Sandy soil, laterite soil and red loam soil. The district comprises sedimentary, crystalline and metamorphic rocks, weather into red soil. Similarly, the red colour of the laterite soil is more due to diffusion of Iron compounds rather than due to high proportion of iron oxides. The alluvial soil is mostly restricted by along the banks of major rivers, whose thickness varies from few meters to 25 meters. Major soil type of the district are red soil, Alluvial & Lateritic soil.

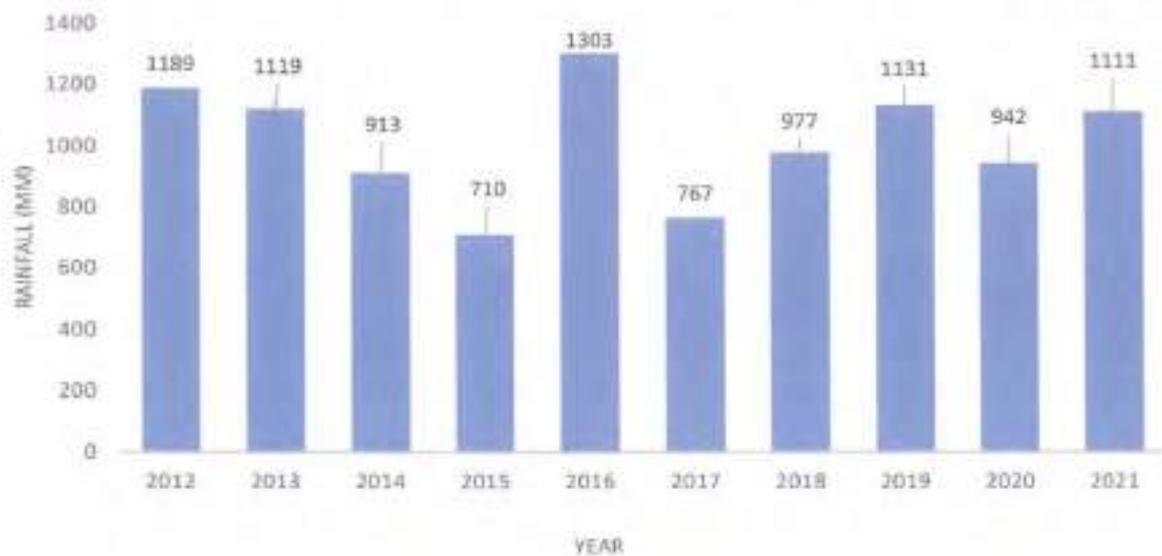
About 43% part of the Bandha block area is covered by forest land. The remaining 57% (approx.) part of the block area is used either as agriculture land or village land (as in habitat). The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The soil is ferruginous sandy soil, typical of the area.

5. Climate & Rainfall:

The area experiences a tropical to semi-tropical climate characterized by varying temperatures throughout the year. Minimum temperatures in December to January drop to around 4°C or lower, while maximum temperatures peak in May to June, reaching approximately 45°C or higher. Singrauli district receives an average annual rainfall of 1132.7 mm, with the majority falling from June to October. Relative humidity ranges from 19% in May to 85% in July and August.

During summer, regions at lower altitudes experience higher temperatures, occasionally affecting plantation efforts negatively. Winter generally remains pleasant, although certain low-lying areas near depressions and along the nalas can experience frost during cold spells, although infrequently.

AVERAGE RAINFALL DATA OF 10 YEARS (mm)



6. Drainage:

The drainages of the block are controlled by Bandha Nala and 1st and 2nd order streams of Kachanmuda Nala. Bandha Nala flows from south to north inside the block and then east to west near Ujheni village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village north-west of the block.

Bandha Coal Mine has dendritic to sub-dendritic drainage pattern. The nearest rivers are Mahan Nadi at 3.5 km in West, Rampa River at 700m in South, Sukhra Nadi at a distance of 5 Km in South-West, Hariya Nadi at a distance of 7.3 Km in West, Kanchan Nadi at a distance of 5.1 Km in NE of the block.

7. FACTORS RESPONSIBLE FOR SOIL EROSION & CHOKING OF STREAMS

The mining activities and overburden dumps are the major source of drainage of soil and other substances for choking of any drainage system existing down below. The forms of erosion observed in this region include mainly rill and gully. The storm water runoffs from the uplands, mine faces and OB dump slope areas carry substantial quantity of solids in the lower order streamlets and choke the higher order streams. These lower order streamlets and gullies have high erosion capacity due to steep gradient and transportation of rock fragments with high velocity of the stream and deposition of same in the connecting high order streams due to velocity drop. Streams can also erode by undercutting their banks resulting in mass-wasting processes like slumps or slides. When the undercut material falls into the stream, the fragments are transported and deposited down below in the stream bed. The other mode of sediment transportation is very negligible.

8. OBJECTIVE OF THE SCHEME

The objectives are as follows: -

- i) To fulfil Condition No. XV(a) of the Stage-I approval granted vide Letter No.F-1/841/2023/10-11/1710 dated 27.04.2023 of MoEF & CC, Government of India to undertake "Mitigative measures to minimize soil erosion and choking of stream shall be implemented within a period of three year with effect from the issue of 'Final' approval in accordance with the approved Plan/Scheme in consultation with the State Forest Department".
- ii) To prevent erosion of top soil.
- iii) To prevent obstruction of existing natural water course.
- iv) Proper Management of overburden deposited to prevent siltation in the down below streams.
- v) To prevent overflow of eroded soils from the mining areas to the natural streams.

9. PROPOSED METHODOLOGY

To achieve the above objectives, it has been proposed to take up both biological and structural works to prevent erosion of surface soil and water conservation. The vegetative method is to be adopted mostly around the OB dumping sites and along the periphery of existing Bandha Nala. The structural works are suggested around OB dumping sites in the lower reaches.

10. MEASURES ALREADY ADOPTED

It is a fresh mining lease and no mining activities have been taken place so far. Hence all the measures proposed in this scheme shall be taken up after grant of Stage -II forest clearance, handing over other forest land by forest dept. & during the course of mining operation.

11. MEASURES PROPOSED

The details of proposed mitigative measures to minimize soil erosion and choking of streams in Mining Lease of Bandha OCP in favour of M/s. EMIL Mines and Minerals Pvt Ltd (EMMRL) over an area of 1850 hectare in village in Bandha, Tenduha, Pidarwah, Deori and Pachaur villages and Mohanban RF, Tehsil Sarai, Dist-Singrauli, MP are given below:

a) Biological measures

i) Plantation

In order to minimise soil erosion in the mining lease area of Bandha OCP. Two (2) types of measures are proposed i.e., i) plantation & ii) structural measures. In this connection it is proposed to take up plantation on 92 Ha as this area will remain undisturbed as rationalized zone and safety belt

The location-wise area details are given below.

Proposed Gap Plantation Area

Component	Area (Ha)
Rationalization Area	77.684
Safety zone	14.012
Total area for plantation	92
No of plants per Ha	600

The list of species proposed for plantation is as follows:

Sl. No.	Local Name	Botanical Name
1	Siris	<i>Albizia lebbek</i>
2	Pakar	<i>Ficus racemosa</i>
3	Imli	<i>Tamarindus indica</i>
4	Neem	<i>Azadirachta indica</i>
5	Aam	<i>Mangifera indica</i>
6	Peepal	<i>Ficus religiosa</i>
7	Bargad	<i>Ficus bengalensis</i>
8	Cassia	<i>Cassia siamea</i>
9	Karanj	<i>Pongamia pinnata</i>
10	Chiraul	<i>Holoptelea integrifolia</i>
11	Kathal	<i>Artocarpus heterophyllus</i>
12	Palas	<i>Butea spp.</i>
13	Gular / Dumar	<i>Ficus glomerata</i>
12	Mahua	<i>Madhuca longifolia</i>

14	Jamun	<i>Syzygium cumini</i>
15	Baheda	<i>Terminalia bellirica</i>
16	Harra	<i>Terminalia chebula</i>
17	Sal	<i>Shorea robusta</i>
18	Sagaun	<i>Tectona Grandis</i>

It is proposed to go for block plantation @ 400 plants per Hectare. Planting shall be done during July in pre-dug pits of size 45 cm X 45 cm X 45 cm. A basal dose of N.P.K fertiliser shall be applied at the time of planting, besides mixing with insecticides to prevent termites & insects. Fruit bearing trees and bamboo rhizomes shall not be planted in close proximity. A minimum distance of 2.5 mt X 2.5 mt shall be maintained on every fourth plants in planting either of the species. Care should be taken to complete the planting during July while rains are still on during first or second week of July.

ii) Weeding

For establishment and better growth of the planted seedlings, timely weeding, soil working and manuring are necessary. It is proposed to carry out two weeding's, soil working and manuring during the first year and second year of plantation and one weeding and soil working during third year. During first year and second year, first weeding and manuring shall be carried out during August-September and the second one during September-October along with soil working after rains. First weeding shall be around the plants and the second one will be done in strip. In the third year the weeding will be done around the plants, which will be carried out during August. After each weeding, intensive soil working will be done around each plant at a radius of 0.5mtr, followed by manuring of @ 50 grams NPK per plant in ring form.

iii) Application of Insecticides

The plantation site, after planting with good and healthy seedlings, may cause influx of insects, which usually eat and damage the tender leaves and shoots of the plants. To get rid of such insect attack, application of insecticides will be taken up in required doses at desired intervals. Spraying of insecticides shall be done preferably in a sunny day in the forenoon as per requirement.

b) Structural Measures

Vegetative means of erosion control are the most feasible and economic measures. However, as the pressure on land is increasing, it is necessary to bring even highly eroded land for utilization. In this type of land, vegetative measures only are not adequate to keep down the erosion. Some structural measures are required to be undertaken along with vegetative measures. Structural measures, therefore, serve as supplementary to vegetative measures. The approved Mining Plan and Mine Closure Plan has prescribed some structural measures to be undertaken to minimise soil erosion which are enlisted below:

i) Construction of Retention wall

It is proposed to construct Retention as per the environmental provision along the toe of the OB dump to provide dump stability.

ii) Construction of Garland drain

6000 meters of fresh garland drains will be installed along the perimeter of the dump and active quarry edges. These drains are essential for preventing surface runoff from entering the quarry area. Moreover,

garland drains are meticulously planned around the quarry periphery, external dumps, and backfilled areas, following natural contours. These drains will channel water through catch pits and settling tanks to remove suspended solids from stormwater, ensuring that only clean water is discharged into natural water courses. Additionally, a comprehensive network of garland drains will be established to intercept surface runoff from undisturbed areas, thereby preventing contamination of the disturbed zones. This systematic approach underscores the project's commitment to safeguarding water quality and minimizing environmental impact throughout its operations.

iii) Construction of Settling Pond

Two settling ponds at two different locations will be constructed to facilitate the sedimentation of particles from mine water, ensuring that only clarified water moves forward. This clarified water will then be utilized for plantation activities, promoting sustainability within the operational area. A robust pumping system has been designed to handle water accumulation during heavy rainfall.

iv) De-siltation of Settling Pond

During periods of low rainfall, stringent treatment processes will ensure that mine seepage meets drinking water standards (BIS: 10500-2012) before discharge into the natural drainage systems. Implementation of the plans will be site specific in nature depending upon the severity of the sedimentation and choking of stream.

v) Construction of Check Dams

Check Dams will be constructed for obstructing flow of water and preventing soil erosion along the length of the garland drains. It is proposed to construct 6 check dams to arrest silt and prevent soil erosion.

12. EXECUTING AGENCY

The work will be executed by the User Agency i.e. M/s EMMRL through dedicated departments manned by technically qualified persons with outsourced man and machinery as and when required. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

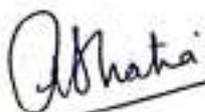


Cost Estimation

Mitigation measures to minimize soil erosion and choking of stream along with their cost is in following table:

Sr.No.	Description of Work	Cost (Rs)	Annexure
1	Gap Plantation @ 400 sapling in 92 Ha for 11-years	17770039.57	Annexure 1
2	Retaining wall all around the OB dump 6000 Mts. @ Rs 7730 per mt.	46380000	Annexure 2
3	Garland Drain all around the OB dump 6000 mts. @Rs 400 per mts.	2400000	Annexure 3
4	Construction of 2 settling Pond of size (50 x 30 x 3)	4433400	Annexure 4
5	Desilting work of garland drain and settling tanks on LS basis	545000	Annexure 5
6	Construction of Check Dams (6 nos.)	661995	Annexure 6
7	Repair work of retaining wall on LS basis	700000	
	Sub Total	72890435	
	Escalation 20%	14578087	
	Total	87468521	

Note: The above expenses have been included in the Approved Mining Plan and Mine Closure Plan under biological reclamation and plantation




Project Head, EMMRL, Bandha Coal Block

Annexure 1 : Gap Plantation in Rationalized zone & Safety Belt

Goswara Ideal Plantation (Area - 92 Ha; 400 Saplings)

Year		Man-days	Rate per man-day	Amount (INR)	Amount per Ha (INR)
1st	2025-26	25672.96	414	10628605.44	115528.32
2nd	2026-27	6135.03	439	2693279.75	29274.78
3rd	2027-28	2360.85	465	1097796.55	11932.57
4th	2028-29	1977.85	493	975081.43	10598.71
5th	2029-30	1527.20	523	798725.60	8681.80
6th	2030-31	424.40	554	235117.60	2555.63
7th	2031-32	422.40	587	247948.80	2695.10
8th	2032-33	387.40	622	240962.80	2619.16
9th	2033-34	387.40	659	255296.60	2774.96
10th	2034-35	420.40	699	293859.60	3194.13
11th	2035-36	409.40	741	303365.40	3297.45
		40125.30		17770039.57	193152.60

First Year Scheme (2025-26) – Rate per Man-Day 414

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Survey & Demarcation (Ha)	92	Ha	0.45	per Ha	41.4	17139.6	Job Rate
2	Construction of <i>Pucca Munara</i>	0	Munara	16	Munara	0	0	On basis of nos.
3	Demarcation of Treatment-type area (including materials) in Ha	92	Ha	1		92	38088	Approximate
4	Cleaning of the area (Ha)	92	Ha	4	per Ha	368	152352	Job Rate
5	Lantana removal work as required (Moderate)	23	Ha	12.5	per Ha	287.5	119025	Job Rate
6	Fencing of plantation area with 1.8 m height, 75 mm x 75 mm mesh size, 12-gauge chain-link fencing, along with cement poles at 2.50 m intervals. Additionally, three lines of barbed wire (6 m per kg) will also be installed. Cement poles will be embedded in 75 cm x 30 cm x 45 cm pits using 1:2:4 cement concrete	4000		2.4	Rmt	9600	3974400	Approximate
7	Pit digging for staking, and alignment	36800	Pits	2.5	per thousand	92	38088	Job Rate
8	Pit size: 45x45x45 cm for Plantation	36800	Pits	5	per hundred	1840	761760	Job Rate
9	Replacement of soil in pits – 30% of the pit volume	1006.02	cu. m.	1.5	per cu. m.	1509.03	624738.42	Market Rate
10	Application of cow dung manure in pits – 15% of the pit volume	503.01	cu. m.	3	per cu. m.	1509.03	624738.42	Market Rate
11	Preparation and mixing of fertile soil, local soil, and organic manure for filling pits	36800	pits	1.5	100	552	228528	Job Rate
12	Construction of one hut		L.S.			120	49680	Estimated
13	Construction of an approach road along with an inspection path		L.S.	1.5	km	364	150696	Estimated
14	Other expenses (signboards, paint, lime, etc.)					98	40572	Estimated
	Sub-Total					16472.96	6819805.44	

15	Soil & Moisture Conservation Activities (25%)	36800	Ha	25	1	9200	3808800	
	Grand Total					25672.96	10628605.44	

Second Year Scheme (2026-27) - Rate per Man-day: 439

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Plantation of Saplings							
	No. of Saplings for first plantation	36800		0.03546	15 per sapling	1305	572863	Market Rate
	No. for replacement of dead saplings	7360		0.03546	15 per sapling	261	114573	Market Rate
2	Transportation of Saplings (Nos.)							
	By Truck/Tractor	44160	saplings	1.5	per 100	662	290794	Job Rate
	By Manual Labour (1 km)	44160	saplings	0.4	per 100	177	77545	Job Rate
3	Lantana removal operation	92	Ha	8	per Ha	736	323104	Job Rate
4	Plantation in pit of size 45 x 45 x 45 cm	36800	Pits	1.8	per 100	662	290794	Job Rate
5	Replacement of Dead Saplings (20%)	7360	saplings	1.8	per 100	132	58159	Job Rate
6	First weeding in Saplings	36800		1.25	per 100	460	201940	Job Rate
7	Second weeding in Saplings	36800		1	per 100	368	161552	Job Rate
8	Third weeding in Saplings	36800		1	per 100	368	161552	Job Rate
9	Application of fertilizers & pesticides	36800		0.6	per 100	221	96931	Job Rate
10	Internal Fire Protection of Line							
	6.0 m wide	4000	m	3.35	per km	13	5883	Job Rate
	3.0 m wide	4000	m	2.25	per km	9	3951	Job Rate
11	Security: 1 labour for 9 months	9	months			270	118530	Estimated
12	First Irrigation	36800			L.S.	200	87800	Estimated
13	Second Irrigation	36800			L.S.	200	87800	Estimated
14	Other expenses (pesticides, fertilizers & other misc items, etc.)					90	39510	Estimated
	Grand Total					6135	2693280	

Third Year Scheme (2027-28) - Rate per Man-day: 465

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Plantation Expense (for replacing 10% of Saplings)	3680		0.03546	INR 10 per sapling	130	60679	Market Rate
2	Transportation of Saplings (Nos.)							
	By Truck/Tractor	3680		1.5	per 100	55	25668	Job Rate
	By Manual Labour (1 km)	3680		0.4	per 100	15	6845	Job Rate
3	Repair work of chain-link fencing					20	9300	Estimated
4	Digging & replacement of 10% of Dead Saplings	3680	saplings	1.8	per 100	66	30802	Job Rate
5	First weeding in Saplings	36800		1.25	per 100	460	213900	Job Rate
6	Second weeding in Saplings	36800		1	per 100	368	171120	Job Rate
7	Third weeding in Saplings	36800		1	per 100	368	171120	Job Rate
8	Application of fertilizers & pesticides	36800		0.6	per 100	221	102672	Job Rate
9	Internal Fire Protection of Line							
	6.0 m wide	4000	m	3.35	per km	13	6231	Job Rate
	3.0 m wide	4000	m	2.25	per km	9	4185	Job Rate
10	Security: 1 labour for 12 months	12	months			360	167400	Estimated
11	Irrigation as per availability	36800			L.S.	200	93000	Estimated
12	Other expenses (pesticides, fertilizers & other misc items, etc.)					75	34875	Estimated
	Grand Total					2361	1097797	

Fourth Year Scheme (2028-29) – Rate per Man-day 493

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Plantation Expense (for replacing 10% of Saplings)	3680		0.03546	INR 10 per sapling	130	64333	Market Rate
2	Transportation of Saplings (Nos.)							
	By Truck/Tractor	3680		1.5	per 100	55	27214	Job Rate
	By Manual Labour (1 km)	3680		0.4	per 100	15	7257	Job Rate
3	Digging & replacement of 10% of Dead Saplings	3680	saplings	1.8	per 100	66	32656	Job Rate
4	First weeding in Saplings	36800		1.25	per 100	460	226780	Job Rate
5	Second weeding in Saplings	36800		1	per 100	368	181424	Job Rate
6	Application of fertilizers & pesticides	36800		0.6	per 100	221	108854	Job Rate
7	Internal Fire Protection of Line							
8	6.0 m wide	4000	m	3.35	per km	13	6606	Job Rate
9	3.0 m wide	4000	m	2.25	per km	9	4437	Job Rate
	Security: 1 labour for 12 months	12	months			360	177480	Estimated
	Irrigation as per availability	36800			L.S.	200	98600	Estimated
10	Other expenses (pesticides, fertilizers & other misc items, etc.)					80	39440	Estimated
	Grand Total					1978	975081	

Fifth Year Scheme (2029-30) – Rate per Man-day 523

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Repair work of chain-link fencing					40	20920	Estimated
2	First weeding in Saplings	36800		1.25	per 100	460	240580	Job Rate
	Second weeding in Saplings	36800		1	per 100	368	192464	Job Rate
	Application of fertilizers & pesticides	36800		0.6	per 100	220.8	115478.4	Job Rate
3	Internal Fire Protection of Line							
4	6.0 m wide	4000	m	3.35	per km	13.4	7008.2	Job Rate
5	3.0 m wide	4000	m	2.25	per km	9	4707	Job Rate
6	Secuirty: 1 labour for 12 months	12	months			360	188280	Estimated
7	Other expenses (pesticides, fertilizers & other misc items, etc.)					56	29288	Estimated
	Grand Total					1527	798726	

Sixth Year Scheme (2030-31) – Rate per Man-day 554

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	4000	m	3.35	per km	13	7424	Job Rate
	3.0 m wide	4000	m	2.25	per km	9	4986	Job Rate
2	Secuirty: 1 labour for 12 months	12	months			360	199440	Estimated
3	Other expenses					42	23268	Estimated
	Grand Total					424	235118	

Seventh Year Scheme (2031-32) – Rate per Man-day 587

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	4000	m	3.35	per km	13	7866	Job Rate
	3.0 m wide	4000	m	2.25	per km	9	5283	Job Rate
2	Security: 1 labour for 12 months	12	months			360	211320	Estimated
3	Other expenses					40	23480	Estimated
	Grand Total					422	247949	

Eighth Year Scheme (2032-33) – Rate per Man-day 622

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	4000	m	3.35	per km	13	8335	Job Rate
	3.0 m wide	4000	m	2.25	per km	9	5598	Job Rate
2	Security: 1 labour for 12 months	12	months			360	223920	Estimated
3	Other expenses					5	3110	Estimated
	Grand Total					387	240963	

Ninth Year Scheme (2033-34) – Rate per Man-day 659

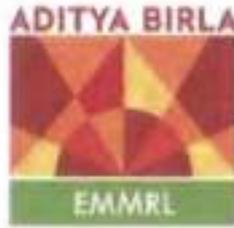
Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	4000	m	3.35	per km	13	8831	Job Rate
	3.0 m wide	4000	m	2.25	per km	9	5931	Job Rate
2	Security: 1 labour for 12 months	12	months			360	237240	Estimated
3	Other expenses					5	3295	Estimated
	Grand Total					387	255297	

Tenth Year Scheme (2034-35) – Rate per Man-day 699

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	4000	m	3.35	per km	13	9367	Job Rate
	3.0 m wide	4000	m	2.25	per km	9	6291	Job Rate
2	Security: 1 labour for 12 months	12	months			360	251640	Estimated
3	Other expenses					38	26562	Estimated
	Grand Total					420	293860	

Eleventh Year Scheme (2035-36) – Rate per Man-day 741

Sr no.	Description of Work	Qty of Work		Rate per unit		Total Man-Days	Amount (INR)	Remarks
		Qty	Unit	Man-days	Unit			
1	Internal Fire Protection of Line							
	6.0 m wide	4000	m	3.35	per km	13	9929	Job Rate
	3.0 m wide	4000	m	2.25	per km	9	6669	Job Rate
2	Security: 1 labour for 12 months	12	months			360	266760	Estimated
3	Other expenses					27	20007	Estimated
	Grand Total					409	303365	

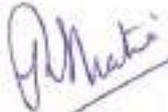


Annexure-20

UNDERTAKING FOR MITIGATIVE MEASURES TO MINIMIZE SOIL EROSION AND CHOKING OF STREAM SHALL BE IMPLEMENTED WITHIN A PERIOD OF THREE YEARS WITH EFFECT FROM THE ISSUE OF 'FINAL' APPROVAL IN ACCORDANCE WITH THE APPROVED PLAN/SCHEME IN CONSULTATION WITH THE STATE FOREST DEPARTMENT

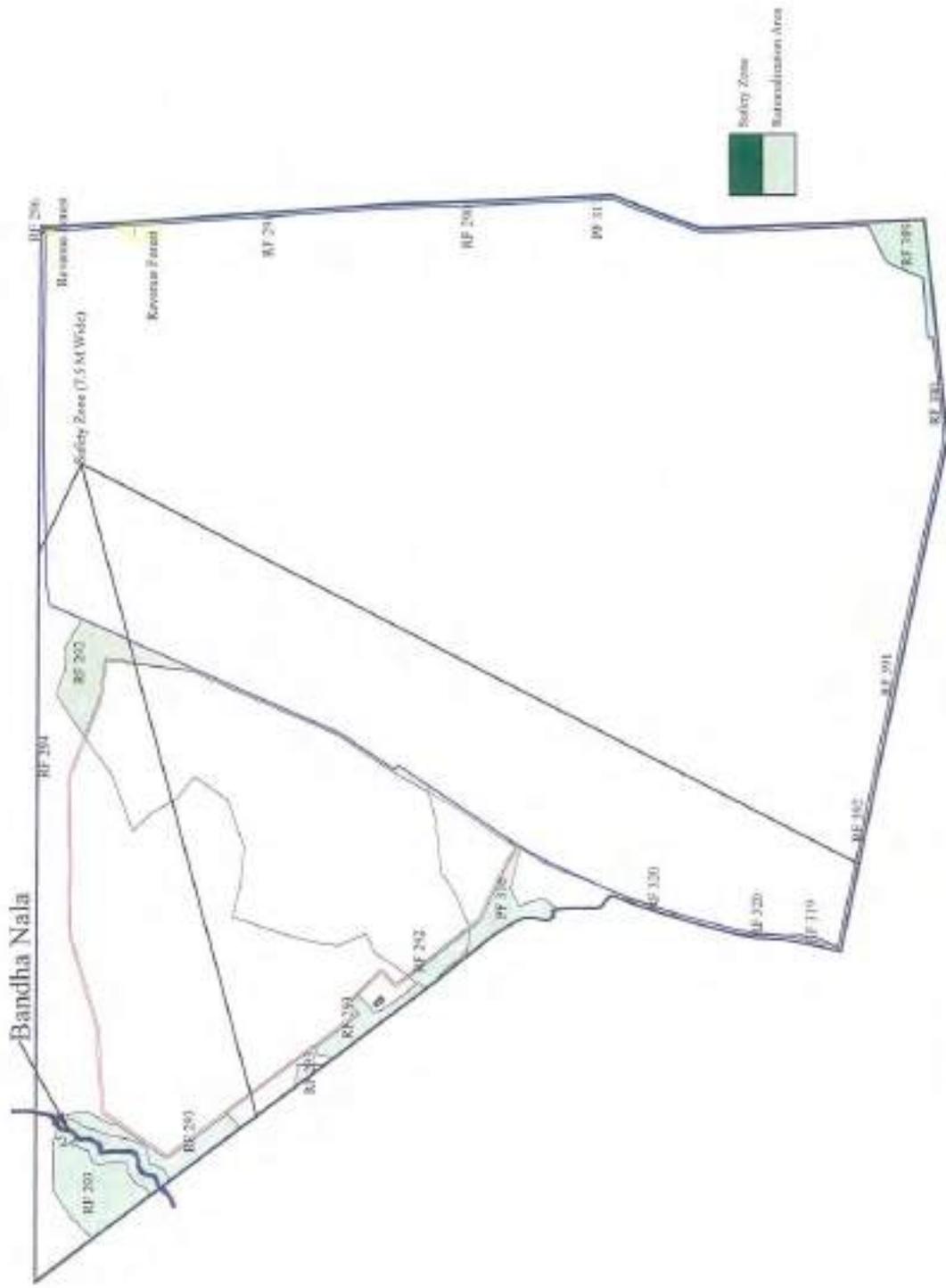
In Compliance to **condition no-xv (a)** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to carry out the mitigative measures to minimize soil erosion and choking of stream shall be implemented within a period of three years with effect from the issue of 'final' approval in accordance with the approved plan/scheme in consultation with the State Forest Department.


Project Head

A circular blue stamp with the text "EMIL Mines And Mineral Resources Limited" around the perimeter and "Bandha Coal Mine" in the center, with a small star at the bottom.

EMMRL Bandha Coal Block



Proposed plantation Scheme over 92 Ha (Safety Zone & Rationalize Area)



Position of Garland Drain, Retention Wall and Check Dams around the OB Dump



**Bandha Coal Project
Scheme
For**

PLANTING OF ADEQUATE DROUGHT HARDY PLANT SPECIES AND SOWING OF SEEDS,
IN THE APPROPRIATE AREA WITHIN THE MINING LEASE TO ARREST SOIL EROSION IN
ACCORDANCE WITH THE APPROVED PLAN/SCHEME.

with

**Condition No. XV (b) of
Stage-I approval granted vide
Letter No.8-17/2023-FC, Dated- 01.10.2024
of Govt. of India, Ministry of Environment, Forests
& Climate Change, New Delhi.**

for

**Diversion of 807.917 Ha. (Instead of 785.49 Ha)
of Forest Land within 1850.94 Ha of ML area of Bandha OCP
for Non forestry use U/s-2 (ii) of FC Act-1980
in villages Bandha, Pidarwaha, Tenduha , Deori and Pachaur
In Sarai Tehsil
Singrauli District, Madhya Pradesh (MP)**

M/s. EMIL Mines And Mineral Resources Limited (EMMRL)

SCHEME FOR PLANTING OF ADEQUATE DROUGHT HARDY PLANT SPECIES AND SOWING OF SEEDS, IN THE APPROPRIATE AREA WITHIN THE MINING LEASE TO ARREST SOIL EROSION IN ACCORDANCE WITH THE APPROVED PLAN/ SCHEME.

1. INTRODUCTION

Bandha Open Cast Coal Mine is a Greenfield opencast mining project spread over a lease area of 1850 Ha. in Bandha, Tenduha, Pidarwah, Deori and Pachaur villages and Mohanban RF, Tehsil Sarai, Dist-Singrauli, MP.

Ministry of Coal, Government of India has allotted this coal block in favour of M/s. EMIL Mines and Minerals Pvt Ltd (EMMRL) vide allotment order no. NA-104/5/2020-NA dated 03rd March 2021.

As per approved Mining Plan and Mine Closure Plan, the mine life is 45 years. Out of total 1850 Ha. of Mining Lease area, total forest land involved is 807.917 Ha out of which 804.367 ha forest land in RF-389, 390, 290, 291, 292, 293, 294, 296, 319, 320, 391, 392 & PF-316, 317 of Forest Range Waidhan/ Sarai East and 3.55 ha Revenue Forest in various Khasras.

M/s. EMMRL submitted the Forest Diversion proposal to obtain Forest Clearance from MoEF & CC, Government of India for 807.917 Ha. of forest land U/s 2(ii) of the Forest (Conservation) Act 1980.

The Stage-I Forest Clearance over 807.917 ha of Forest Land Under Section- 2 (ii) of the Forest (Conservation) Act, 1980 has been granted by MoEF & CC, Government of India vide their Letter No. 8-17/2023-FC I/83491/2024, dated 01.10.2024.

As per Condition No. XV (d) for stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that angles of repose at any given place is less than 280.

2. LOCATION

The mining lease area is covered in the Survey of India toposheet no.63 I/8 (R.F. 150000) and open series toposheet nos. G-44W8 (M2, M4, N2, S1, S2, R1, R3, R4) (R.F. 15,000). and situated between the Lat. 23°46'37" N & 24°13'17" N and Long. 81°45'24" E & 82°47'50" E. The above ML area comes within the villages Bandha, Tenduha, Pidarwah, Deori & Pachaur, in Tehsil Sarai, Dist.: Singrauli, MP.

3. TOPOGRAPHY

The Bandha coal block, situated in the northeastern part of the main basin, has been explored through boreholes revealing intersections from the Raniganj to Barakar formations. Geomorphologically, the district is characterized by hilly terrain, predominantly covered by the Kaimur hilly ranges, which divide the area into three physiographic divisions: the northeastern Kaimur ranges, central hill ranges, and southern hilly ranges.

About 43 percent of the Bandha block area is covered by forest land. The remaining approx. 57 percent of the block area is tenancy land and govt. Land. The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the block varies from 405.00m to 475.00m above MSL.

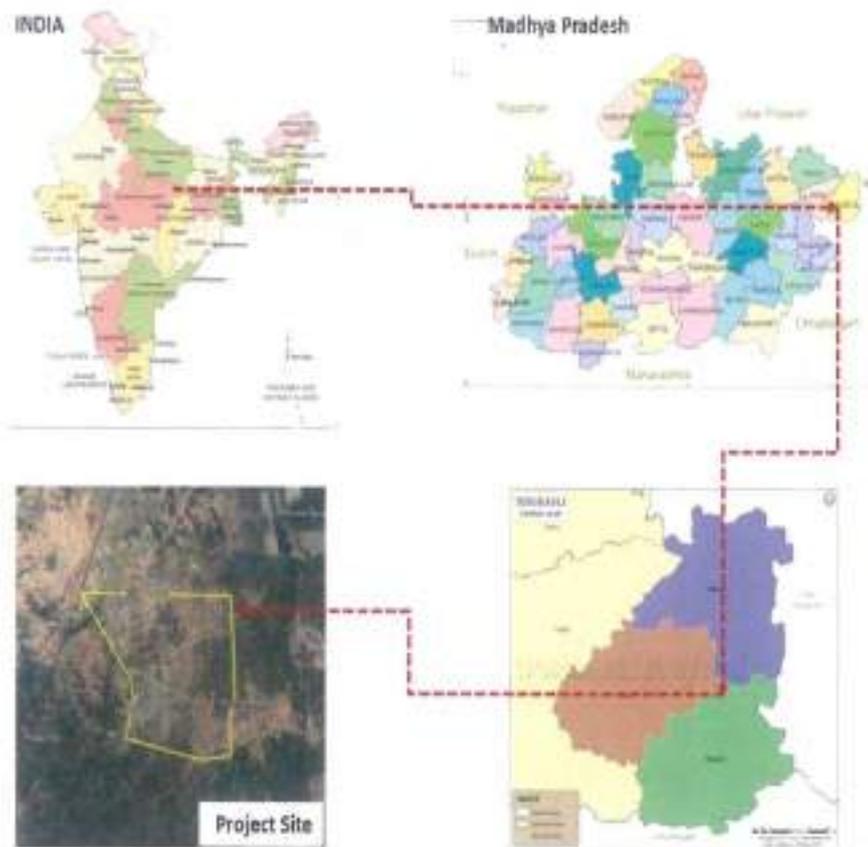


Figure 1: Location of the Mine

4. LAND USE PATTERN:

Component wise breakup			
S.no	Component	Forest Land (ha.)	Non-Forest Land (ha.)
1	Railway Siding	0.54	15.46
2	Rationalisation area	77.684	0
3	External Dump	183.75	166.51
4	Safety Zone	7.48	6.532
5	Pit/Internal Dump	538.463	776.899
6	Infrastructure + Settling Pond	0	77.619
Total		807.917	1043.02
Grand Total (Forest+ Non-Forest)		1850.94 Ha	

5. Soil Type:

The Singrauli District is generally covered with Alluvial soil, red Sandy soil and yellow loamy Sandy soil, laterite soil and red loam soil. The district comprises sedimentary, crystalline, and metamorphic rocks, weather into red soil. Similarly, the red colour of the laterite soil is more due to diffusion of Iron compounds rather than due to high proportion of Iron oxides. The alluvial soil is mostly restricted by along the banks of major rivers, whose thickness varies from few meters to 25 meters. Major soil type of the district is red soil, Alluvial & Lateritic soil.

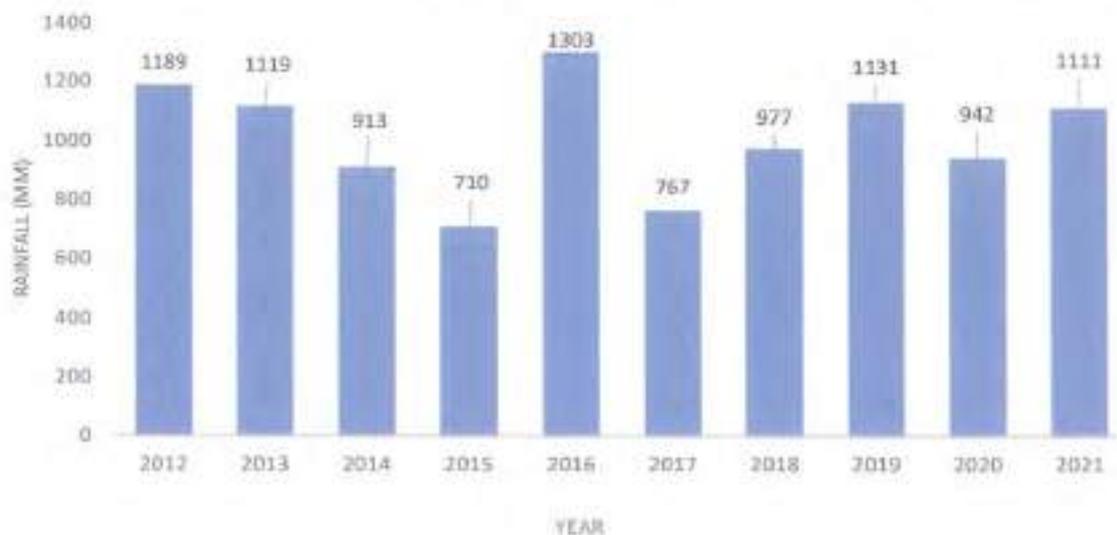
About 43% part of the Bandha block area is covered by forest land. The remaining 57% (approx.) part of the block area is used either as agriculture land or village land (as in habitat). The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The soil is ferruginous sandy soil, typical of the area.

6. Climate & Rainfall:

The area experiences a tropical to semi-tropical climate characterized by varying temperatures throughout the year. Minimum temperatures in December to January drop to around 4°C or lower, while maximum temperatures peak in May to June, reaching approximately 45°C or higher. Singrauli district receives an average annual rainfall of 1132.7 mm, with the majority falling from June to October. Relative humidity ranges from 19% in May to 85% in July and August.

During summer, regions at lower altitudes experience higher temperatures, occasionally affecting plantation efforts negatively. Winter generally remains pleasant, although certain low-lying areas near depressions and along the nalas can experience frost during cold spells, although infrequently.

AVERAGE RAINFALL DATA OF 10 YEARS (mm)



7. Drainage

The drainages of the block are controlled by Bandha Nala and 1st and 2nd order streams of Kachanmuda Nala. Bandha Nala flows from south to north inside the block and then east to west near Ujheni village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village north-west of the block.

Bandha Coal Mine has dendritic to sub-dendritic drainage pattern. The nearest rivers are Mahan Nadi at a distance of 3.5 in West, Rampa River at a distance of 700m in South, Sukhra Nadi at a distance of 5 Km in South-West, Hariya Nadi at a distance of 7.3 Km in West, Kanchan Nadi at a distance of 5.1 Km in NE of the block.

8. OBJECTIVES OF THE SCHEME

Planning for plantation & grass seed sowing will be done with the following objectives:

- a. To meet the stipulation XV(b) of Stage-I Forest clearance accorded vide Letter No. 8-17/2023, dated 01.10.2024 of MoEF & CC, Government of India, New Delhi, i.e., "planting of adequate drought hardy plant species & sowing of seeds, in appropriate area within mining lease to arrest soil erosion in accordance with the approved scheme."
- b. To compensate the loss to vegetation due to operation of the mine.
- c. To prevent spread of fugitive dust generated due to mining and allied activities.
- d. To attenuate noise generated by the mine.
- e. To reduce soil erosion.
- f. To stabilize the slope of external over-burden dumps.
- g. To increase the green cover and to improve aesthetics.
- h. To attract the birds, which are addressed as litmus of nature.
- i. To provide recreational value to colony inhabitants.
- j. Attract Animals to re-colonize the area where the Mine is abandoned.

9. PLANTATION

In order to fulfil the above objective, it is proposed to go for plantation in an area measuring 92 Ha as this area will remain undisturbed as rationalized zone and safety belt. within the Mining Lease area. Saplings would be planted at the rate of 400 trees /ha in Block plantation mode. Post planting care would be taken to replace casualties, remove dead, dying, diseased and top broken trees etc. The location-wise area details are given below.

Component	Area (Ha)
Rationalization Area	77.684
Safety zone	14.012
Total area for planation	92
No of plants per Ha	400

The list of species proposed for plantation is as follows:

Sl. No.	Local Name	Botanical Name
1	Siris	<i>Albizia lebbek</i>
2	Pakar	<i>Ficus racemosa</i>
3	Imli	<i>Tamarindus indica</i>
4	Neem	<i>Azadirachta indica</i>
5	Aam	<i>Mangifera indica</i>
6	Peepal	<i>Ficus religiosa</i>
7	Bargad	<i>Ficus bengalensis</i>
8	Cassia	<i>Cassia siamea</i>
9	Karanj	<i>Pongamia pinnata</i>
10	Chiraul	<i>Holoptelea integrifolia</i>
11	Kathal	<i>Artocarpus heterophyllus</i>
12	Palas	<i>Butea spp.</i>
13	Gular / Dumar	<i>Ficus glomerata</i>
12	Mahua	<i>Madhuca longifolia</i>
14	Jamun	<i>Syzygium cumini</i>
15	Baheda	<i>Terminalia bellirica</i>
16	Harra	<i>Terminalia chebula</i>
17	Sal	<i>Shorea robusta</i>
18	Sagaun	<i>Tectona Grandis</i>

The choice of species is based on the following parameters: (i) Drought hardy and (ii) it should prevent soil erosion. Selection of the plant species is based on the inventory of the local forest species. like *Neem (Azadirachta indica)*, *Karanja (Pongamia pinnata)*, *Asan (Terminalia aolata)*, *Kusum (Schleichera oleosa)*, *Amla (Embllica officinalis)*, *Mundi (Mitragyna parviflora)*, *Kasi (Bridelia retusa)*, *Sunari (Cassia fistula)* etc.

It is proposed to go for block plantation @ 400 plants per Hectare. Planting shall be done during July in pre-dug pits of size 45 cm X 45 cm X 45 cm. A basal dose of N.P.K fertilizer shall be applied at the time of planting, besides mixing with insecticides to prevent termites & insects. Fruit bearing trees and bamboo rhizomes shall not be planted in close proximity. A minimum distance of 2.5 mt X 2.5 mt shall be maintained on every fourth plants in planting either of the species. Care should be taken to complete the planting during July while rains are still on during first or second week of July.

a. Pre-Planting and Planting Operation

Different operations that will be taken up for plantation are as follows:

i) Raising of nursery

Seedlings required for plantation shall be raised in a temporary nursery nearer to the planting site and water sources. Nursery work will be started one and half year before the year of plantation so that one and half year-old seedlings will be available for plantation. 20% extra seedlings shall be raised besides the actual requirement to compensate the casualties. Seedlings will be raised in polythene bags of 10" x 6" size following standard nursery practice.

ii) Alignment and pitting

Alignment and pitting will be taken up in the month of March-April, Pits of size 45cm X 45cm X 45cm will be dug maintaining a spacing of 2.5mtr X 2.5mtr.

iii) Actual Planting

The seedling would be planted in the dugout pits of size 45cm x 45cm x 45cm with a spacing of 2.5mtr x 2.5mtr. Plantation will be taken up after first regular shower of monsoon and will be completed by the end of July. Species will be planted as per suitability of the soil condition. NPK fertilizer @50gms per plant will be applied as basal dosage 5 gm of anti-termite insecticide will also be applied to each pit while planting. Casualties, if any noticed, shall be replaced with the extra seedlings raised for the purpose. During second year also, casualty replacement will be done for which seedlings shall be raised.

iv) Weeding, Soil working & Manuring

For establishment and better growth of the planted seedlings, timely weeding, soil working and manuring are necessary. It is proposed to carry out two weedings, soil working and manuring during the first year and second year of plantation and one weeding and soil working during third year. During first year and second year, first weeding and manuring shall be carried out during August-September and the second one during October-November along with soil working after rains. First weeding shall be around the plants and the second one will be done in strip. In the third year the weeding will be done around the plants, which will be carried out during August.

After each weeding, intensive soil working will be done around each plant at a radius of 0.5mtr, followed by manuring of @50grms NPK per plant in ring form.

v) **Application of insecticides**

The plantation site, after planting with good and healthy seedlings, may cause influx of insects, which usually eat and damage the tender leaves and shoots of the plants. To get rid of such insect attack, application of insecticides will be taken up in required doses at desired intervals. Spraying of insecticides shall be done preferably in a sunny day in the forenoon as per requirement.

b. **Post Plantation Care**

Post Plantation care shall be adopted to ensure maximum survival of the plants. Funds would be provided for maintenance of the plants for ten years (i.e. nine years) after the year of plantation. In the present Scheme, provision of fund would be made immediately after planting the seedlings. Watering would be done at regular interval during the dry spell. In the dry season, watering would be regularly done especially during February to June. Watering in one year planted saplings would be more frequent (10 days in a month). Manuring would be done by using organic manure (cow dung, agricultural waste, kitchen waste, etc.). Diseased and dead plants would be uprooted, destroyed and replaced by fresh saplings. Growth and survival of saplings would be regularly monitored and remedial actions would be undertaken as required.

1. **GRASS SEED SOWING:**

In order to minimize soil erosion in the mining lease area of Bandha OCP it is proposed to go for sowing of grass seeds in a phased manner over an area of 1190 Ha. in the back-filled area as per the Table given below.

Year	Backfill Area (Ha)	
	Yr Wise	Cumulative
Y-10	150	150
Y-15	150	300
Y-20	140	440
Y-25	140	580
Y-30	208	788
Y-35	150	939
Y-40	150	1089
Y-44	102	1190
Y-50	0	1190

Some soil binding grasses species like *Vetiveria zizanioides*, *Bothriochloa odorata*, *Themeda triandra*, *Andropogon manticola*, *Apluda mutica* will be introduced. The Grass seeding shall be done after spreading of Top soil in the back-filled area with adequate mixing of good earth & farm grade manure.

The location map for proposed area where drought hardy species shall be planted & the grass seeds shall be shown is furnished as Annexure-I.

1. EXECUTING AGENCY

The work will be executed by the User Agency i.e., EMMRL through dedicated departments manned by technically qualified persons with outsourced man and machinery as and when required. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.



Cost Estimation

SL No	Description of Work	Cost (Rs)	Remarks
1	Gap Plantation (@ 400 sapling/ha) over an area of 92 Ha with 11 years of scheme		Cost of plantation already included in mitigative measures and choking of streams in condition no- XV (a)
2	Grass seeding over 1190 ha. @ 27000 per ha.	32130000	Annexure-1
3	Sub Total	32130000	
	Escalation 20%	6426000	
	Total Cost	38556000	

Note: The above expenses have been included in the Approved Mining Plan and Mine Closure Plan under biological reclamation and plantation.

(Signature)

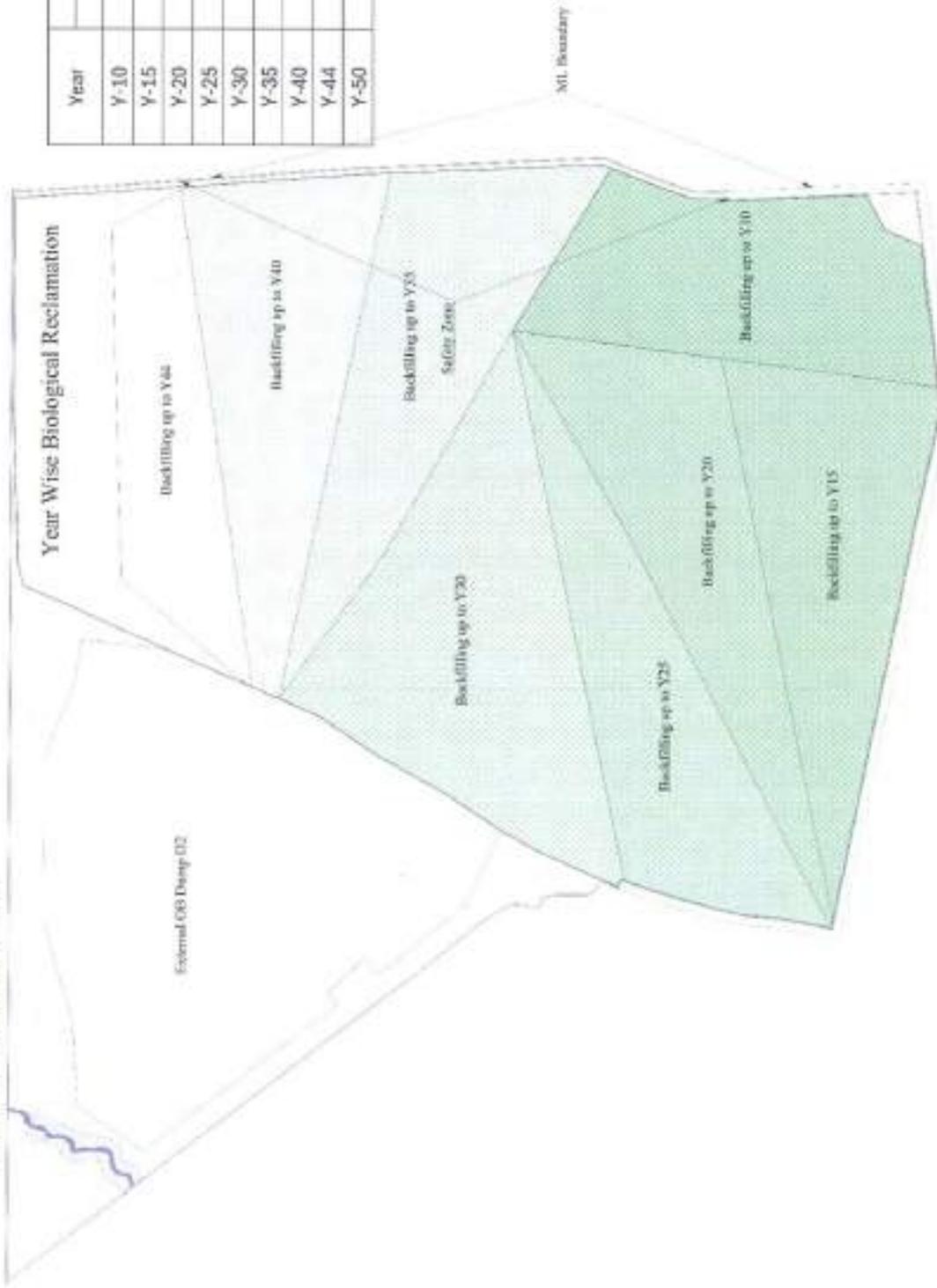


Project Head, EMMRL, Bandha Coal Block

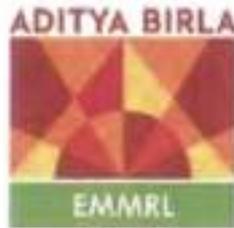
Annexure-1: Cost estimation for sowing of seeds per Ha

Sl. No.	Purpose	No of Labour/ Quantity of materials	Rate (Rs.)	Amount (Rs.)
1	Spreading of good earth and FYM including carriage	20 Nos	450	9000
2	Adding FYM and good earth	2 TL FYM	1,000/TLFYM	4000
		2 TL good earth	1,000/TL Good earth	
3	Cost of grass seed 50 kg/Ha.		100/kg	5000
4	Broadcast sowing	20 nos.	450	9000
Total				27000

Bandha Nala Plantation (50 m)



Year	Backfill Area (Ha)	
	Yr-Wise	Cumulative
Y-10	150	150
Y-15	150	300
Y-20	140	440
Y-25	140	580
Y-30	208	788
Y-35	150	939
Y-40	150	1089
Y-44	102	1190
Y-50	0	1190

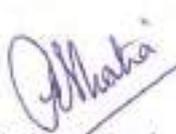


Annexure-21

UNDERTAKING PLANTING OF ADEQUATE DROUGHT HARDY PLANT SPECIES AND SOWING OF SEEDS, IN THE APPROPRIATE AREA WITHIN THE MINING LEASE TO ARREST SOIL EROSION IN ACCORDANCE WITH THE APPROVED PLAN/SCHEME.

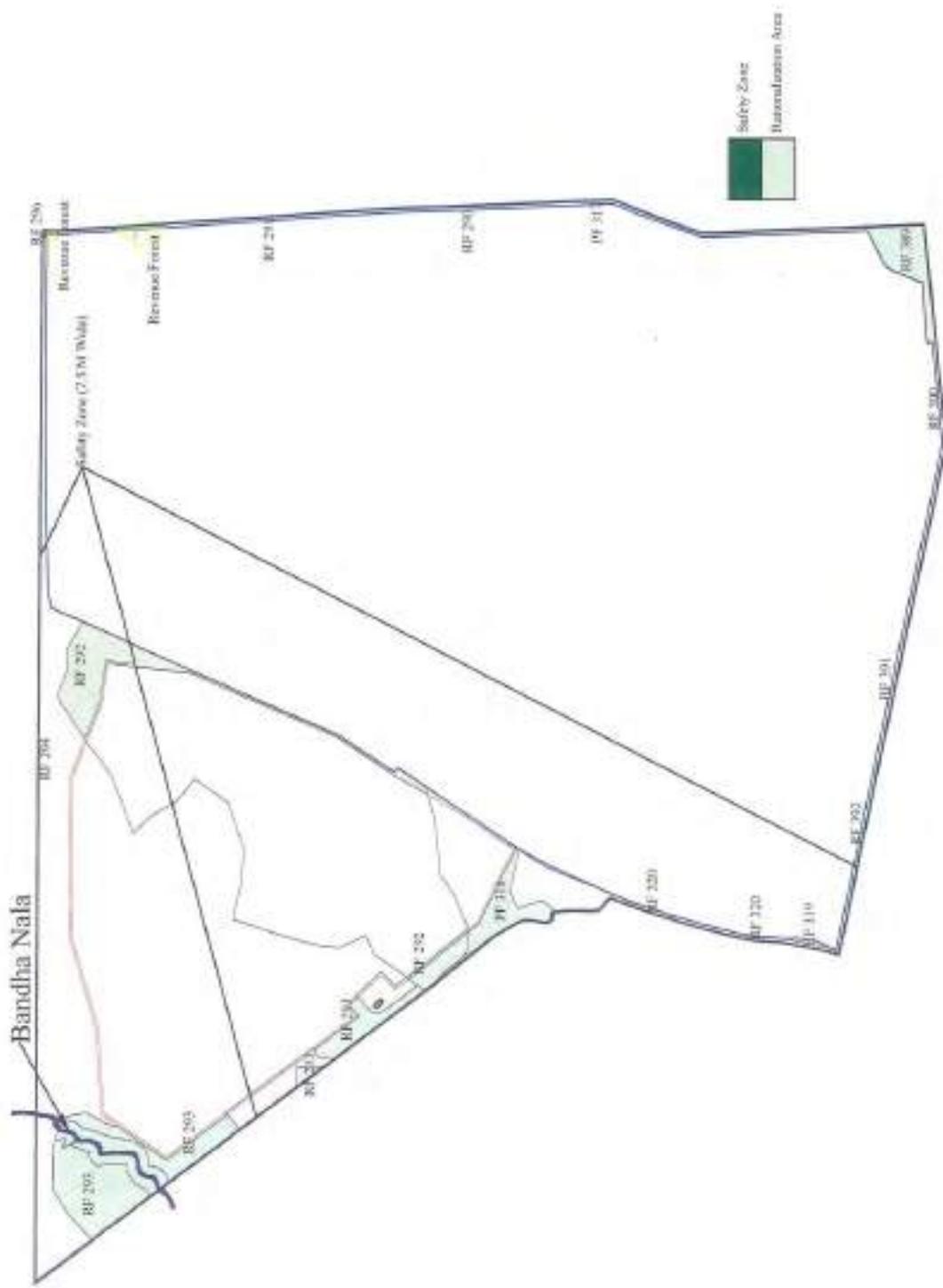
In Compliance to **condition no-xv (b)** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to plant adequate drought hardy plant species and sow seeds in the appropriate area within the mining lease to arrest soil erosion in accordance with the approved plan/scheme.


Project Head

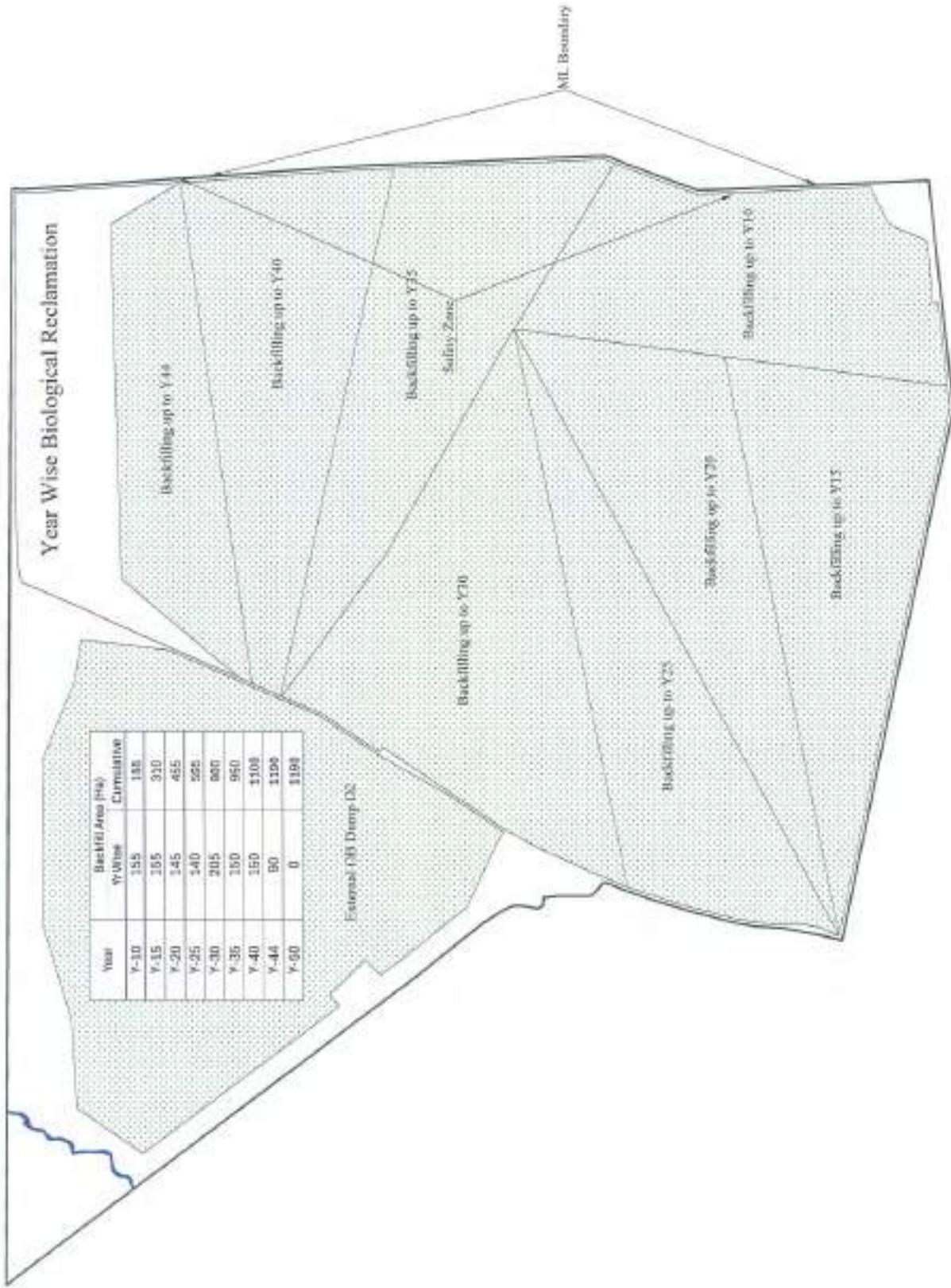


EMMRL Bandha Coal Block

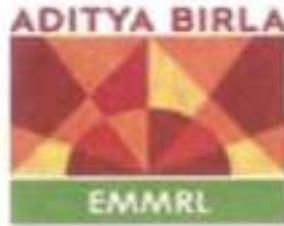


Proposed plantation Scheme over 92 Ha (Safety Zone & Rationalize Area)

Bandha Nala



Plantation Scheme over Internal Dump / Backfilling area and External Dump



Bandha Coal Project

Scheme

For

CONSTRUCTION OF CHECK DAMS, RETENTION/TOE WALLS TO ARREST SLIDING DOWN OF THE EXCAVATED MATERIAL ALONG THE CONTOUR IN ACCORDANCE WITH THE APPROVED PLAN/SCHEME.

in compliance

with

Condition No. XV (c) of

Stage-I approval granted vide

Letter No.8-17/2023-FC, Dated- 01.10.2024

of Govt. of India, Ministry of Environment, Forests

& Climate Change, New Delhi.

for

Diversion of 807.917 Ha. (Instead of 785.49 Ha)

of Forest Land within 1850.94 Ha of ML area of Bandha OCP

for Non forestry use U/s-2 (ii) of FC Act-1980

in villages Bandha, Pidarwaha, Tenduha , Deori and Pachaur

In Sarai Tehsil

Singrauli District, Madhya Pradesh (MP)

M/s. EMIL Mines And Mineral Resources Limited (EMMRL)

SCHEME FOR CONSTRUCTION OF CHECK DAMS, RETENTION/TOE WALLS TO ARREST SLIDING DOWN OF THE EXCAVATED MATERIAL ALONG THE CONTOUR IN ACCORDANCE WITH THE APPROVED PLAN/SCHEME.

1. INTRODUCTION

Bandha Open Cast Coal Mine is a Greenfield opencast mining project spread over a lease area of 1850 Ha, in Bandha, Tenduha, Pidarwah, Deori and Pachaur villages and Mohanban RF, Tehsil Sarai, Dist-Singrauli, MP.

Ministry of Coal, Government of India has allotted this coal block in favour of M/s. EMIL Mines and Minerals Pvt Ltd (EMMRL) vide allotment order no. NA-104/5/2020-NA dated 03rd March 2021.

As per approved Mining Plan and Mine Closure Plan, the mine life is 45 years. Out of total 1850 Ha. of Mining Lease area, total forest land involved in 807.917 Ha out of which 804.367 ha forest land in RF-389, 390, 290, 291, 292, 293, 294, 296, 319, 320, 391, 392 & PF-316, 317 of Forest Range Waidhan/ Sarai East and 3.55 ha Revenue Forest in various Khasras.

M/s. EMMRL submitted the Forest Diversion proposal to obtain Forest Clearance from MoEF & CC, Government of India for 807.917 Ha. of forest land U/s 2(ii) of the Forest (Conservation) Act 1980.

The Stage-I Forest Clearance over 807.917 ha of Forest Land Under Section- 2 (ii) of the Forest (Conservation) Act, 1980 has been granted by MoEF & CC, Government of India vide their Letter No. 8-17/2023-FC I/83491/2024, dated 01.10.2024

Condition No. XV (c) for undertaking Construction of check dams, retention /toe walls to arrest sliding down of the excavated material along the contour in accordance with the approved scheme.

2. LOCATION

The mining lease area is covered in the Survey of India toposheet no.63 I/8 (R.F. 150000) and open series toposheet nos. G-44W8 (M2, M4, N2, S1, S2, R1, R3, R4) (R.F. 15,000). and situated between the Lat. 23°46'37" N & 24°13'17" N and Long. 81°45'24" E & 82°47'50" E. The above ML area comes within the villages Bandha, Tenduha, Pidarwah, Deori & Pachaur, in Tehsil Sarai, Dist.: Singrauli, MP.

3. TOPOGRAPHY

The Bandha coal block, situated in the northeastern part of the main basin, has been explored through boreholes revealing intersections from the Raniganj to Barakar formations. Geomorphologically, the district is characterized by hilly terrain, predominantly covered by the Kaimur hilly ranges, which divide the area into three physiographic divisions: the northeastern Kaimur ranges, central hill ranges, and southern hilly ranges.

About 43 percent of the Bandha block area is covered by forest land. The remaining approx. 57 percent of the block area is tenancy land and govt. Land. The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the block varies from 405.00m to 475.00m above MSL.

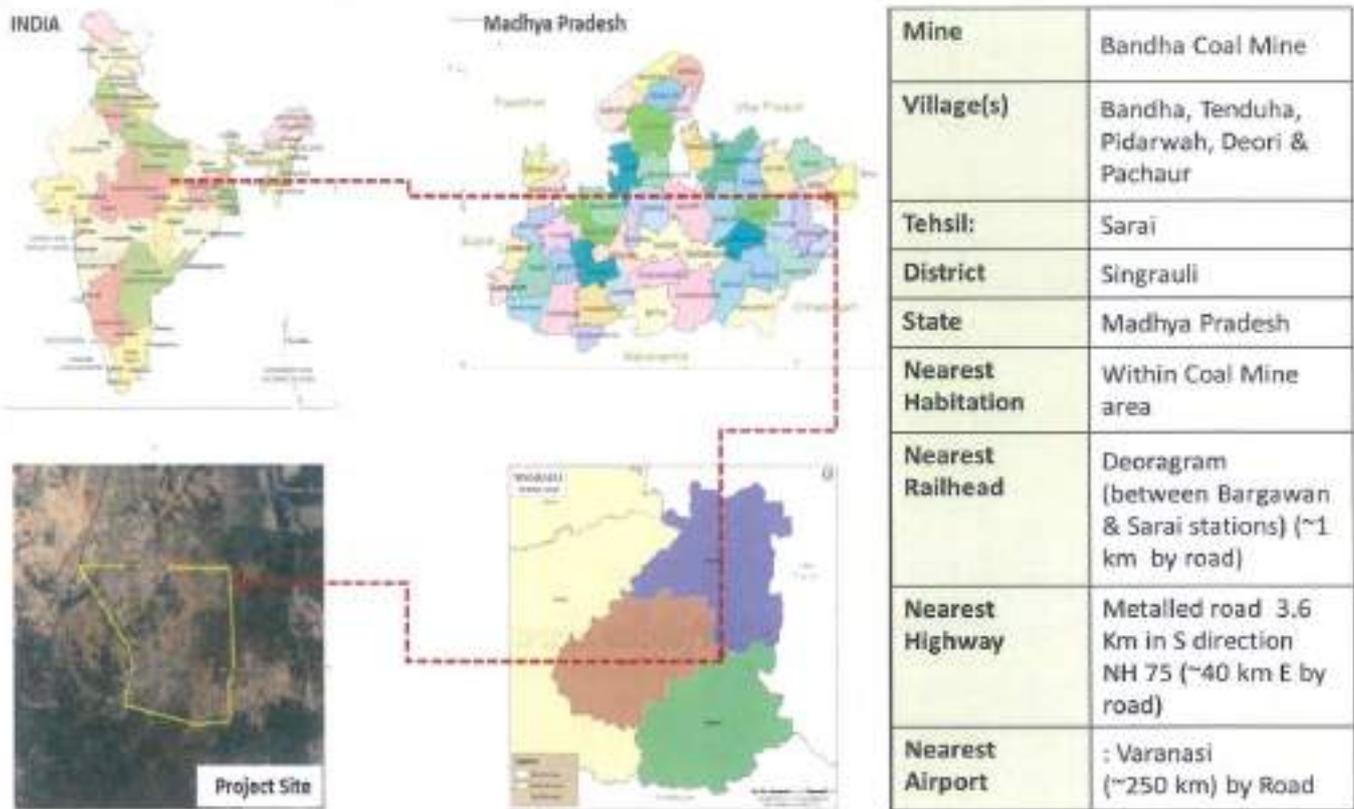


Figure 1: Location of the Mine

LAND USE PATTERN

Component wise breakup			
S.no	Component	Forest Land (ha.)	Non-Forest Land (ha.)
1	Railway Siding	0.54	15.46
2	Rationalisation area	77.684	0
3	External Dump	183.75	166.51
4	Safety Zone	7.48	6.532
5	Pit/Internal Dump	538.463	776.899
6	Infrastructure + Settling Pond	0	77.619
Total		807.917	1043.02
Grand Total (Forest+ Non-Forest)		1850.94 Ha	

4. SOIL TYPE

The Singrauli District is generally covered with Alluvial soil, red Sandy soil and yellow loamy Sandy soil, laterite soil and red loam soil. The district comprises sedimentary, crystalline, and metamorphic rocks, weather into red soil. Similarly, the red colour of the laterite soil is more due to diffusion of Iron compounds rather than due to high proportion of Iron oxides. The alluvial soil is mostly restricted by along the banks of major rivers, whose thickness varies from few meters to 25 meters. Major soil type of the district are red soil, Alluvial & Lateritic soil.

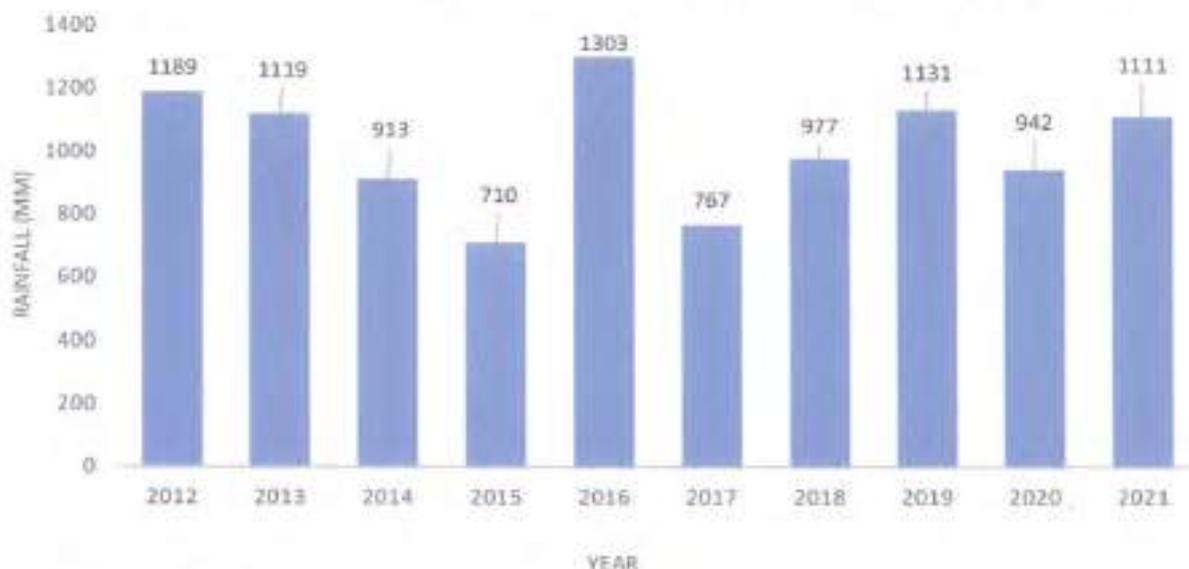
About 43% part of the Bandha block area is covered by forest land. The remaining 57% (approx.) part of the block area is used either as agriculture land or village land (as in habitat). The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The soil is ferruginous sandy soil, typical of the area.

5. CLIMATE & RAINFALL

The area experiences a tropical to semi-tropical climate characterized by varying temperatures throughout the year. Minimum temperatures in December to January drop to around 4°C or lower, while maximum temperatures peak in May to June, reaching approximately 45°C or higher. Singrauli district receives an average annual rainfall of 1132.7 mm, with the majority falling from June to October. Relative humidity ranges from 19% in May to 85% in July and August.

During summer, regions at lower altitudes experience higher temperatures, occasionally affecting plantation efforts negatively. Winter generally remains pleasant, although certain low-lying areas near depressions and along the nalas can experience frost during cold spells, although infrequently.

AVERAGE RAINFALL DATA OF 10 YEARS (mm)



7. DRAINAGE

The drainages of the block are controlled by Bandha Nala and 1st and 2nd order streams of Kachanmuda Nala. Bandha Nala flows from south to north inside the block and then east to west near Ujhani village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village north-west of the block.

Bandha Coal Mine has dendritic to sub-dendritic drainage pattern. The nearest rivers are Mahan Nadi at a distance of 3.5 in West, Rampa River at a distance of 700m in South, Sukhra Nadi at a distance of

5 Km in South-West, Hariya Nadi at a distance of 7.3 Km in West, Kanchan Nadi at a distance of 5.1 Km in NE of the block.

8. OBJECTIVES OF THE SCHEME

The main objective of the present scheme is to fulfil the Condition No. 11(c) of the Stage-I approval granted vide Letter No- 8-17/2023-FC I/83491/2024, dated 01.10.2024 of MoEF & CC, Government of India to undertake "Construction of check dams, retention /toe walls to arrest sliding down of the excavated material along the contour in accordance with the approved Plan/Scheme".

The different steps proposed to be adopted are as under:

- a) To prevent erosion of sediment due to surface runoff.
- b) To prevent obstruction of natural water sources.
- c) To complete construction activities efficiently before surface soil is exposed.
- d) To prevent overflow of eroded soil from the mining areas to the natural streams and habitations.

9. PROPOSED METHODOLOGY

To achieve the above objectives, it has been proposed to take up both biological and structural works to prevent erosion of surface soil and water conservation. The vegetative method is to be adopted mostly around the OB dumping sites and along Bandha Nala & in the un-disturbed area of the block. The structural works are suggested around OB dumping sites in the lower reaches.

A) Structural Measures

Vegetative means of erosion control are the most feasible and economic measures. However, as the pressure on land is increasing, it is necessary to bring even highly eroded land for utilization. In this type of land, vegetative measures only are not adequate to keep down the erosion. Some structural measures are required to be undertaken along with vegetative measures. Structural measures, therefore, serve as supplementary to vegetative measures. The approved Mining Plan and Mine Closure Plan has prescribed some structural measures to be undertaken to minimise soil erosion which are enlisted below:

i) Construction of Retaining wall

It is proposed to construct Retaining Wall all around the OB Dump as per the environmental provision along the toe of the OB dump to provide dump stability.

ii) Construction of Garland drain

6000 meters of fresh garland drains will be installed along the perimeter of the dump and active quarry edges. These drains are essential for preventing surface runoff from entering the quarry area. Moreover, garland drains are meticulously planned around the quarry periphery, external dumps, and backfilled areas, following natural contours. These drains will channel water through catch pits and settling tanks to remove suspended solids from stormwater, ensuring that only clean water is discharged into natural water courses. Additionally, a comprehensive network of garland drains will be established to intercept surface runoff from undisturbed areas, thereby preventing contamination of the disturbed zones. This systematic approach underscores the project's commitment to safeguarding water quality and minimizing environmental impact throughout its operations.

iii) Construction of Settling Ponds

Two settling ponds at two different locations will be constructed to facilitate the sedimentation of particles from mine water, ensuring that only clarified water moves forward. This clarified water will then be utilized for plantation activities, promoting sustainability within the operational area. A robust pumping system has been designed to handle water accumulation during heavy rainfall.

iv) De-siltation of Settling Ponds

During periods of low rainfall, stringent treatment processes will ensure that mine seepage meets drinking water standards (BIS: 10500-2012) before discharge into the natural drainage systems. Implementation of the plans will be site specific in nature depending upon the severity of the sedimentation and choking of stream.

v) Construction of Check Dams

Check Dams will be constructed for obstructing flow of water and preventing soil erosion along the length of the garland drains.

B) Slope of the proposed Dump

Shovel-Dumper spoil dumps will be formed in benches of 30m in height and slope of individual dump bench will be 37deg. The total excavated 1926.50 Mm³ of waste material has been proposed to accommodate in internal and external dumps upto 560m RL and stacked alluvium soil will be spread over reclaimed dump. The spoil dump height should not exceed 120m from average original surface level with an overall slope of around 28deg. The slope of spoil bank shall be determined by natural angle of repose of the material being deposited, in any case, shall not increase 37deg from horizontal. Any spoil bank exceeding 30m in height shall be benched so that no bench exceeds 30m in height and the overall slope shall not exceed 1 vertical to 1.5 horizontal.

C) Management

Before dumping the OB on the floor of seam, at least 10m length all along the strike length should be made horizontal at every 50 meters by floor dinting/blasting. Dump should be created in such a way that there is no chance of accumulation of water in and around the base of dump. It must be ensured that there is no stagnant water at the toe of dump and the top of the dump. The toe and face of the dump should not be eroded or cut at any point of time to avoid slope failure. A suitable toe wall should be created along the dump periphery. Formation of dumping should be done in square or circular or any regular shape as far as possible. Proper drainage system should be provided to bring down rainwater. Sump and pumping capacity should be sufficient to accommodate peak surface run-off and seepage of water.

10. EXECUTING AGENCY

The work will be executed by the User Agency i.e. M/s EMMRL through dedicated departments manned by technically qualified persons with outsourced man and machinery as and when required. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.



Cost Estimate

Sr.No.	Description of Work	Cost (Rs)	Remarks	Annexures
1	Retaining wall all around the OB dump 6000 Mts. @ Rs 7730 per mt.			Annexure-1
2	Garland Drain all around the OB dump 6000 mts. @Rs 400 per mts.			Annexure-2
3	Construction of 2 settling Pond of size (50 x 30 x 3)			Annexure-3
4	Desilting work of garland drain and settling tanks on LS basis			Annexure-4
5	Construction of Check Dams (6 nos.)			Annexure-5
6	Repair work of retaining wall on LS basis			
	Sub Total			
	Escalation 20%			
	Total			

Note: The above expenses have been included in the Approved Mining Plan and Mine Closure Plan under biological reclamation and plantation.



Project Head, EMMRL, Bandha Coal Block

Annexure-2

Estimate for Garland Drain -(TW= 5 m, BW = 3 m, height- 1 m, side slope=1:1)									
SL No	Items	UOM	L	T W	BW	D	Quantity	Rate (Rs)	Cost (Rs)
1	Excavation in all types of soil	m ³	1000	5	3	1	4000	100	400000
Cost per Km									400000
Cost per m									400

Annexure-3

Estimate for Settling Pond -(50 m x 30 m x 3 m)								
SL No	Item	UoM	L(m)	W(m)	D(m)	Quantity	Rate in Rs	Cost in Rs
1	Earthwork Excavation	m ³	50	30	3	4500	150	675000
2	PCC (M10) Lining (bottom)		50	30	0.1	150		
	PCC (M10) Lining (Side walls)		50	3	0.1	30		
	PCC (M10) Lining (Side walls)		30	3	0.1	18		
	Total PCC (M10)	m ³				198	5500	1089000
3	HDPE/Geo-membrane Lining	m ²				1980	100	198000
4	RCC M20 for inlet and outlet structure	m ³	1.5	1.5	2	9	7500	67500
5	Steel Reinforcement (100 kg/m ³)	Kg				900	80	72000
6	Stone pitching for side walls		50	3	0.3	90		
	Stone pitching for side walls		30	3	0.3	54		
	Total Stone Pitching	m ³				144	800	115200
Total Cost (Rs)								2216700

Annexure-4

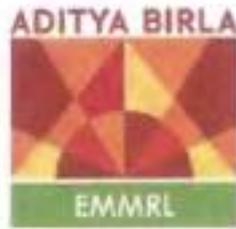
Estimate De siltation of Settling Pond -(50 m x 30 m x 3 m)

Assuming the entire pond is filled with silt up to 1.5 m depth (half the total depth of 3 m):

SL No	Item	UoM	L (m)	W (m)	D (m)	Quantity	Rate (Rs)	Cost (Rs)
1	Excavation & Removal of Silt (Mechanical)	m ³	50	30	1.5	2250	120	270000
2	Loading & Transportation (5 km lead)	m ³				2250	100	225000
3	Dewatering (if required)	LS				1	50000	50000
Total Cost (Rs)								545000

Annexure-5

Check Dam Estimate									
SL No	Description	UOM	Nos	L	B	H	Qty	Rate	Amount(Rs)
1	Excavation in foundation								
	Main Wall	Cum	1	5	1.5	0.3	2.25		
	Side wall	Cum	2	5	1.5	0.3	4.5		
	other	Cum	1	5	5	1	25		
2	Concrete M20						31.75	150	4762.5
	Base								
	Main Wall	Cum	1	5	1.5	0.3	2.25		
	Side wall	Cum	2	2	1.5	0.3	1.8		
	Wall								
	Main Wall	Cum	1	5	0.3	0.7	1.05		
	Side wall	Cum	2	2	0.3	0.7	0.84		
							5.94	6200	36828
3	Reinforcement	KG					594	90	53460
4	Shuttering								
	Main Wall								
	Base	Sqm	2	6.5		0.3	3.9		
	Wall	Sqm	2	5.3		0.7	7.42		
	Side wall								
	Base	Sqm	4	6.5		0.3	7.8		
	Wall	Sqm	4	5.3		0.7	14.84		
							33.96	450	15282
									110332.5



Annexure-22

UNDERTAKING CONSTRUCTION OF CHECK DAMS, RETENTION/TOE WALLS TO ARREST SLIDING DOWN OF THE EXCAVATED MATERIAL ALONG THE CONTOUR IN ACCORDANCE WITH THE APPROVED PLAN/SCHEME.

In Compliance to **condition no-xv (c)** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

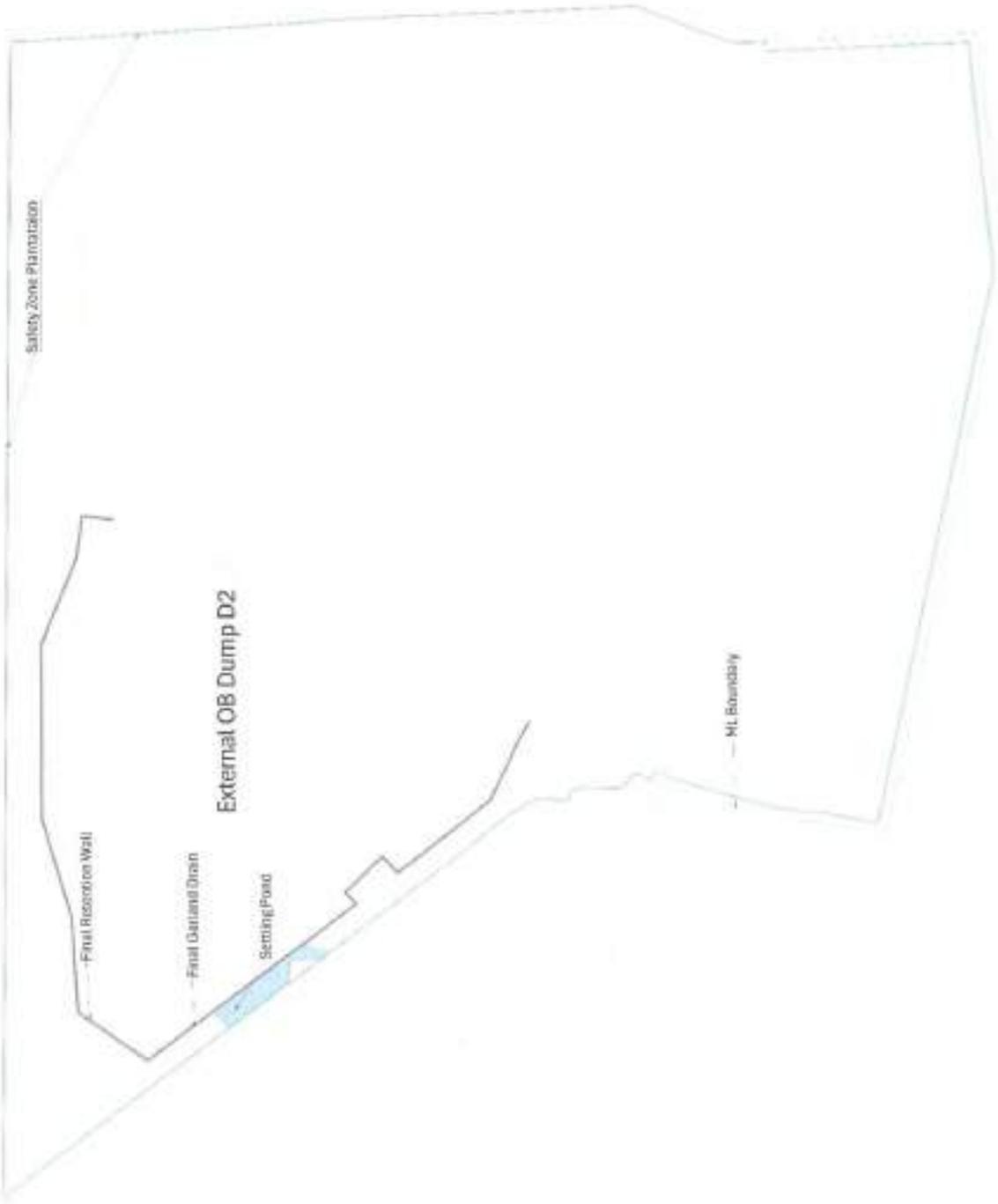
I hereby undertake to construct the check dams, retention/toe walls to arrest sliding down of the excavated material along the contour in accordance with the approved plan/scheme.

A handwritten signature in blue ink, appearing to read "A. Mathia", is written over a horizontal line.

Project Head



EMMRL Bandha Coal Block



Safety Zone Placement

External OB Dump D2

Final Remediation Wall

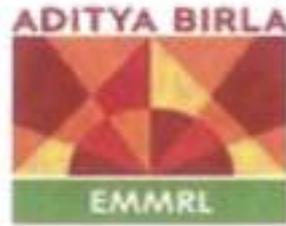
Final Outland Drain

Sewing Pond

ML Boundary



Position of Garland Drain, Retention Wall and Check Dams around the OB Dump



Annexure - 23

Bandha Coal Project

Scheme

For

**STABILIZE THE OVERBURDEN DUMPS BY APPROPRIATE GRADING/BENCHING,
IN ACCORDANCE WITH THE APPROVED SCHEME, SO AS TO ENSURE THAT
ANGLES OF REPOSE AT ANY GIVEN PLACE IS LESS THAN 28°**

in compliance

with

Condition No. XV (d) of

Stage-I approval granted vide

Letter No.8-17/2023-FC, Dated- 01.10.2024

of Govt. of India, Ministry of Environment, Forests

& Climate Change, New Delhi.

for

Diversion of 807.917 Ha. (Instead of 785.49 Ha)

of Forest Land within 1850.94 Ha of ML area of Bandha OCP

for Non forestry use U/s-2 (ii) of FC Act-1980

in villages Bandha, Pidarwaha, Tenduha , Deori and Pachaur

In Sarai Tehsil

Singrauli District, Madhya Pradesh (MP)

M/s. EMIL Mines And Mineral Resources Limited (EMMRL)

SCHEME FOR STABILIZING THE OVERBURDEN DUMPS BY APPROPRIATE GRADING /BENCHING, IN ACCORDANCE WITH THE APPROVED SCHEME, SO AS TO ENSURE THAT ANGLES OF REPOSE AT ANY GIVEN PLACE IS LESS THAN 28°

1. INTRODUCTION

Bandha Open Cast Coal Mine is a Greenfield opencast mining project spread over a lease area of 1850 Ha. in Bandha, Tenduha, Pidarwah, Deori and Pachaur villages and Mohanban RF, Tehsil Sarai, Dist- Singrauli, MP.

Ministry of Coal, Government of India has allotted this coal block in favour of M/s. EMIL Mines and Minerals Pvt Ltd (EMMRL) vide allotment order no. NA-104/5/2020-NA dated 03rd March 2021.

As per approved Mining Plan and Mine Closure Plan, the mine life is 45 years. Out of total 1850 Ha. of Mining Lease area, total forest land involved is 807.917 Ha out of which 804.367 ha forest land in RF-389, 390, 290, 291, 292, 293, 294, 296, 319, 320, 391, 392 & PF-316, 317 of Forest Range Waidhan/Sarai East and 3.55 ha Revenue Forest in various Khasras.

M/s. EMMRL submitted the Forest Diversion proposal to obtain Forest Clearance from MoEF & CC, Government of India for 807.917 Ha. of forest land U/s 2(ii) of the Forest (Conservation) Act 1980.

The Stage-I Forest Clearance over 807.917 ha of Forest Land Under Section- 2 (ii) of the Forest (Conservation) Act, 1980 has been granted by MoEF & CC, Government of India vide their Letter No. B-17/2023-FC I/83491/2024, dated 01.10.2024.

As per Condition No. XV (d) for stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that angles of repose at any given place is less than 28°.

2. LOCATION

The mining lease area is covered in the Survey of India toposheet no.63 I/8 (R.F. 150000) and open series toposheet nos. G-44W8 (M2, M4, N2, S1, S2, R1, R3, R4) (R.F. 15,000), and situated between the Lat. 23°46'37" N & 24°13'17" N and Long. 81°45'24" E & 82°47'50" E. The above ML area comes within the villages Bandha, Tenduha, Pidarwah, Deori & Pachaur, in Tehsil Sarai, Dist.: Singrauli, MP.

3. TOPOGRAPHY

The Bandha coal block, situated in the northeastern part of the main basin, has been explored through boreholes revealing intersections from the Raniganj to Barakar formations. Geomorphologically, the district is characterized by hilly terrain, predominantly covered by the Kaimur hilly ranges, which divide the area into three physiographic divisions: the northeastern Kaimur ranges, central hill ranges, and southern hilly ranges.

About 43 percent of the Bandha block area is covered by forest land. The remaining approx. 57 percent of the block area is tenancy land and govt. Land. The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the block varies from 405.00m to 475.00m above MSL.

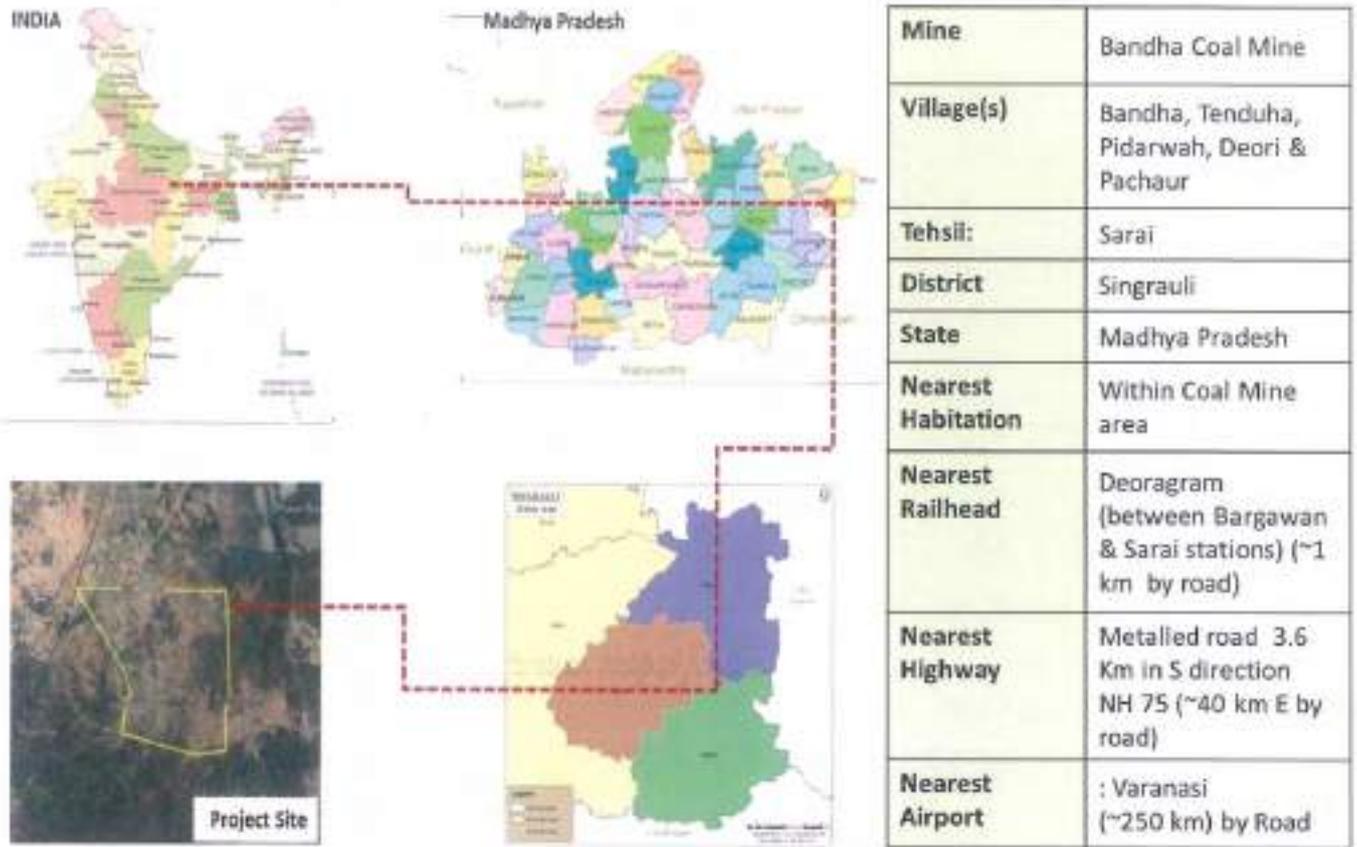


Figure 1: Location of the Mine

4. LAND USE PATTERN:

Component wise breakup			
S.no	Component	Forest Land (ha.)	Non-Forest Land (ha.)
1	Railway Siding	0.54	15.46
2	Rationalisation area	77.684	0
3	External Dump	183.75	166.51
4	Safety Zone	7.48	6.532
5	Pit/Internal Dump	538.463	776.899
6	Infrastructure + Settling Pond	0	77.619
Total		807.917	1043.02
Grand Total (Forest+ Non-Forest)		1850.94 Ha	

5. Soil Type:

The Singrauli District is generally covered with Alluvial soil, red Sandy soil and yellow loamy Sandy soil, laterite soil and red loam soil. The district comprises sedimentary, crystalline, and metamorphic rocks, weather into red soil. Similarly, the red colour of the laterite soil is more due to diffusion of Iron compounds rather than due to high proportion of Iron oxides. The alluvial soil is mostly restricted by along the banks of major rivers, whose thickness varies from few meters to 25 meters. Major soil type of the district is red soil, Alluvial & Lateritic soil.

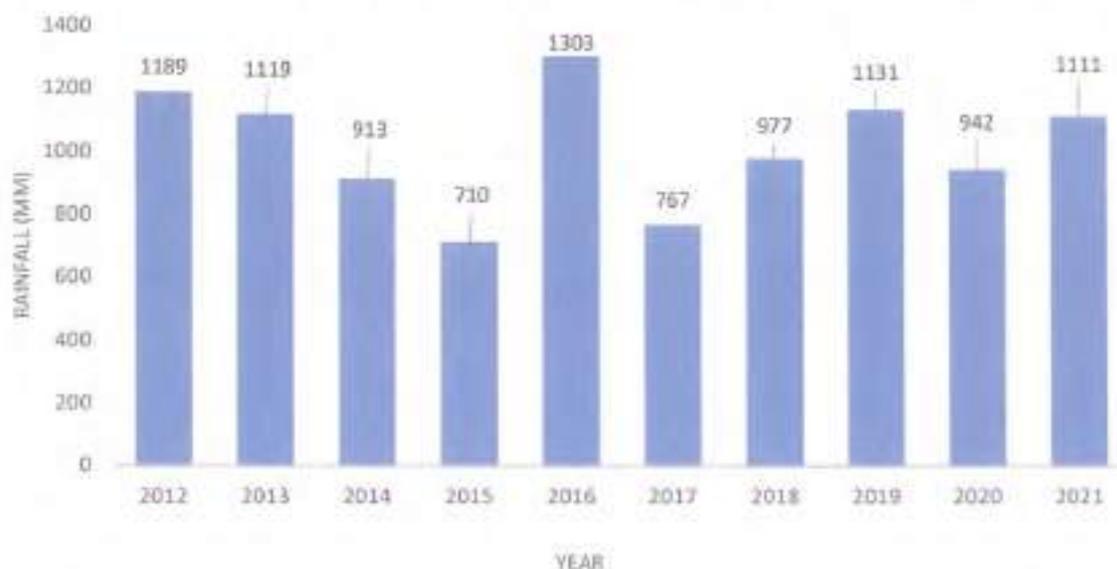
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6. Climate & Rainfall:

The area experiences a tropical to semi-tropical climate characterized by varying temperatures throughout the year. Minimum temperatures in December to January drop to around 4°C or lower, while maximum temperatures peak in May to June, reaching approximately 45°C or higher. Singrauli district receives an average annual rainfall of 1132.7 mm, with the majority falling from June to October. Relative humidity ranges from 19% in May to 85% in July and August.

During summer, regions at lower altitudes experience higher temperatures, occasionally affecting plantation efforts negatively. Winter generally remains pleasant, although certain low-lying areas near depressions and along the nalas can experience frost during cold spells, although infrequently.

AVERAGE RAINFALL DATA OF 10 YEARS (mm)



7. Drainage:

The drainages of the block are controlled by Bandha Nala and 1st and 2nd order streams of Kachanmuda Nala. Bandha Nala flows from south to north inside the block and then east to west near Ujhani village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village north-west of the block.

Bandha Coal Mine has dendritic to sub-dendritic drainage pattern. The nearest rivers are Mahan Nadi at a distance of 3.5 in West, Rampa River at a distance of 700m in South, Sukhra Nadi at a distance of

5 Km in South-West, Hariya Nadi at a distance of 7.3 Km in West, Kanchan Nadi at a distance of 5.1 Km in NE of the block.

B. PHASE WISE MINING ACTIVITY AND MANAGEMENT OF OVERBURDEN DUMP

Taking into consideration the topography of the deposit, estimated reserve and grade, disposition of coal body, nature of intercalated waste, incidence of coal, and production requirement, the deposits will be mined by fully mechanised method with the deployment of Surface miner, hydraulic shovel, dumpers, dozers etc. on three shift bases.

a. OB Generation:

The management strategy for topsoil and overburden (OB) during the proposed mining operations prioritizes preserving soil fertility and efficient waste disposal. Initially, topsoil will be meticulously removed and stored outside the quarry area to maintain its fertility. It will be stockpiled for four years before being spread over reclaimed land areas.

- The total volume of OB generated for the extraction of 197.00 million metric tons (Mt) of coal amounts to 1922.00 million cubic meters (Mm³) (including in seam band), with an average stripping ratio of 9.76 cubic meters per ton (m³/t).
- 1922 Mm³ OB = 1917.50 Mm³ OB + 4.5 Mm³ each of in-seam dirt band

In the first six years of quarry operation, due to limited space, OB will be deposited in external dumps D2 on the dip side and D1 on the north side. From the seventh to the twenty-fifth year, both internal and external OB dumps will be actively utilized.

Beyond the twenty-fifth year, mining operations will transition from along-strike to dip-rise orientation. This change will enable simultaneous flushing of internal and external OB dumps, maximizing their storage capacity.

By the thirtieth year, a total of 1378.65 Mm³ of OB, including 11.70 Mm³ of alluvium soil and additional in-seam dirt band and alluvium soil from external dumps, must be excavated and accommodated in internal and external dumps. An additional dump (D1) on the north side within the quarry boundary will address the anticipated shortage of 36.50 Mm³ of OB dump space by the twenty-fifth year.

Alluvium soil totalling 21.00 Mm³ will be stored separately and used to cover the reclaimed dumps during mine closure activities. In the final phase of the plan, internal backfilled OB dumps will accommodate 1619.20 Mm³ of waste material, while external OB dump D2 will handle 307.30 Mm³.

The plan strictly adheres to regulatory requirements, maintaining a minimum 100-meter distance between dump toes and operational areas. Pit boundaries are finalized to accommodate future underground mine entries and meet operational needs as per the Coal Mines Regulations of 2017.

b. The salient features of OB Dump Management practices

Retaining wall and garland drain would be provided around the proposed dumps with settling tanks. Precautionary measures to be adopted during waste disposal are as follows:

- The ultimate dump slope to be maintained around 28^o.
- Terrace shall have inward slope with a provision of catch drain.
- The dump edge will be covered with bund.

Garland drains will be constructed adjacent to proposed dumps following the contour & different terrace will be connected to the catch drain. The drainage pattern should be such that the runoff will be channelized to the catch drain before releasing to the garland drain outside the periphery of dump.

Table: Waste Management Plan (MM³)

Year/Stage		Total		OB Removal			OB Dumping					
							External Dump		Internal Backfilling		Embankment	
(Life of the mine plus post closure period)				(Cumulative)			(Cumulative)		(Cumulative)		(Cumulative)	
		Top Soil	OB	Top Soil	OB	Total	Top Soil	OB	Top Soil	OB	Top Soil	OB
Up to Base year	2025-26	0	0			0						
C-1/Yr-1	2026-27	0.2	4.8	0.2	4.8	5	0.2	4.8		0		
Yr-3	2028-29	1.5	37	1.5	37	38.5	1.5	37		0		
Yr-5	2030-31	3	88.25	3	88.25	91.25	3	88.25		0		
Yr-10	2035-36	7.8	292.1	8.35	291.55	299.9	7.8	212		80.1		
Yr-15	2040-41	7.8	530.1	10.3	527.6	537.9	7.8	250.1		280		
Yr-20	2045-46	7.8	801.55	12.4	796.95	809.35	7.8	286.5		515.05		
Yr-25	2050-51	7.8	1085.7	14.4	1079.1	1093.5	7.8	286.5		799.2		
Yr-30	2055-56	7	1371.65	16.2	1362.45	1378.65	7	291.2		1080.45		
Yr-35	2060-61	5.9	1611.9	18.1	1599.7	1617.8	5.9	285.7		1326.2		
Yr-40	2065-66	4.6	1821.05	20.2	1805.45	1825.65	4.6	307.3		1513.75		
Yr-45	2070-71	0	1926.5	21	1905.5	1926.5	0	307.3		1619.2		
Post Closure												
Yr-50	2075-76	0	1926.5	21	1905.5	1926.5	0	307.3		1619.2		

9. THE OBJECTIVES OF THE PROPOSED PLAN

The objectives of the proposed plan are as follows:

- i. To fulfil the stipulation, i.e., Condition No. XV (d) imposed in the Stage-I approval granted vide Letter No. 8-17/2023-FC I/83491/2024, dated 01.10.2024 of MoEF & CC, Government of India to prepare plan for Stabilize the overburden dumps by appropriate grading/benching so as to ensure that angles of repose at any given place is less than 28°.
- ii. To provide methodologies and implement the proposed works in time bound manner to prevent slope failures there by providing stable OB dump slopes.
- iii. To stabilize the over burden dumps by plantation.

To prevent overflow of eroded soil from the fines, OB dump areas which lead to siltation in the streams.

10. PROPOSED METHODOLOGY

Top soil from the slopes of the dump are likely to flow during heavy rains and disturb the topography of its adjoining land, till the dump surface is completely stabilized by biological means. In order to curb this situation, retaining walls of minimum one & half meter height have been planned all along the peripheral contour of the dumps to arrest the possibility material running down on the slopes. Waste dumping has been planned in such a manner that backfilling can be done with a view to reclaim the degraded land.

The methods to be adopted for stabilization of OB dumps are as follows:

a. Bio-engineering Measures

- Terraces as a soil conservation measures.

b. Structural measures

- Terracing of slopes, plugging of gullies by construction of catch drain

To give an ideal shape to the dump, appropriate slope has to be maintained for which terraces to be made in dumps to maintain the slope. The angle of repose of the terrace would be around 28°. Terraces would be developed having maximum height of 30 m in dumps keeping in view the gradual

progress of dump and area available for minimum utilisation of virgin land. The details of dumps and terraces to be made have been summarized as follows:

- **Terracing of OB Dump Slope:**

It is proposed to construct berm & terraces to cover the entire dump area, incorporating the volume of OB materials & the area earmarked for dumping. The slope of individual terrace should be within the permissible range considering the soil and space available, maintaining the angle of repose at less than 28°. The terracing will be done through the internal resources by deploying the operating mining equipment. All these operations will be carried out after sufficient deposition of OB has been made.

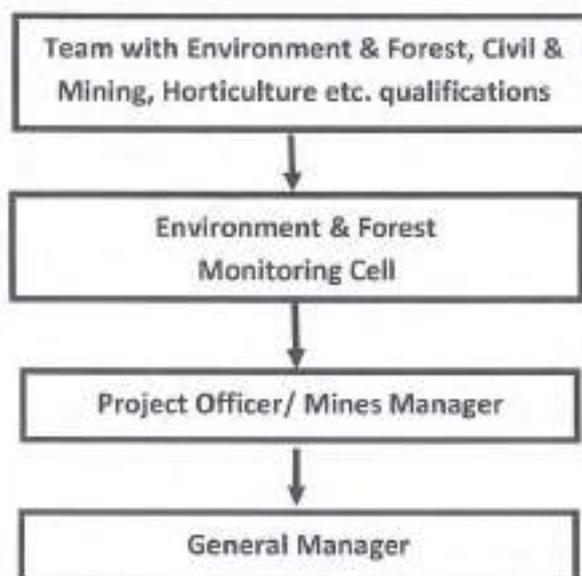
11. INSPECTION, MONITORING AND EVALUATION:

Proper inspection, monitoring and evaluation will be done in-house by designated authorities of EMMRL under supervision of Forest Department.

12. EXECUTING AGENCY:

The work will be executed by the User Agency i.e., M/s EMMRL Limited through dedicated departments manned by technically qualified persons with outsourced man and machinery as and when required. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

EXECUTING AGENCY



TERRACING OF THE DUMP SLOPE

For terracing of OB Dump in a planned manner, internal resources shall be deployed utilising HEMM vehicles etc. However, an estimated cost calculation is provided below to calculate the amount of cost to be incurred for the said job.

Engagement of HEMM on the O/B dump slope for terracing

Location: Over Burden Dump

Work efficiency per hour: 3.38 running meter on the dump

Width & height of the terrace - 30 m. x 30 m.

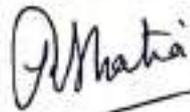
Rate for engagement of HEMM/hr - Rs. 2000.00

Rate for engagement of HEMM/hr/m- Rs.2000.00 / 3.38 m = Rs. 591.71 or say Rs.592/-

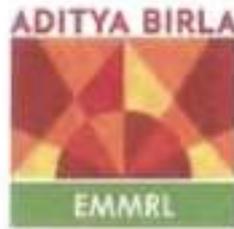
Total Cost = Rs. 592.00 X 29410 m = Rs. 1,74,10,000.00

Therefore, cost of terracing to be done at OB Dump for a length of 29410 Running Metre is
Rs. 1,74,10,000.00 (One Crore Seventy-Four Lakhs Ten Thousand only)

Note: The above expenses have been included in the Approved Mining Plan and Mine Closure Plan under biological reclamation and plantation.




Project Head, EMMRL, Bandha Coal Block



Annexure-23

UNDERTAKING STABILIZE THE OVERBURDEN DUMPS BY APPROPRIATE GRADING/BENCHING, IN ACCORDANCE WITH THE APPROVED SCHEME, SO AS TO ENSURE THAT ANGLES OF REPOSE AT ANY GIVEN PLACE IS LESS THAN 28°.

In Compliance to **condition no-xv (d)** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that angles of repose at any given place is less than 28°

A handwritten signature in blue ink, appearing to read "P. Mahanta", is written over a horizontal line.

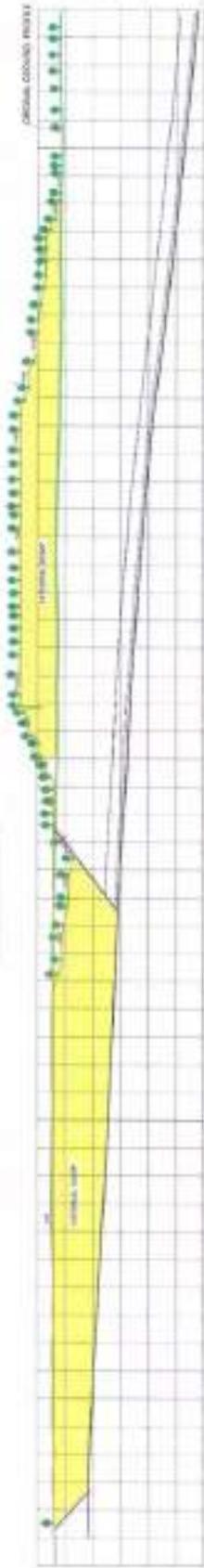
Project Head



EMMRL Bandha Coal Block



SHOWING DUMP PROFILE AT THE END OF MINING OPERATION
E-W SECTION CUT



LEGEND

SYMBOLS
 1. DUMP TOE
 2. DUMP HEAD
 3. DRAINAGE DITCH
 4. ORIGINAL GROUND PROFILE

SHOWING DUMP PROFILE AT THE END OF MINING OPERATION
N-S SECTION CUT

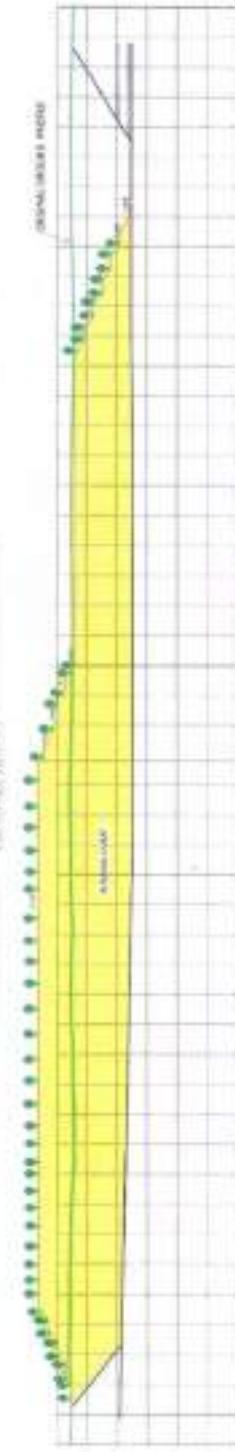
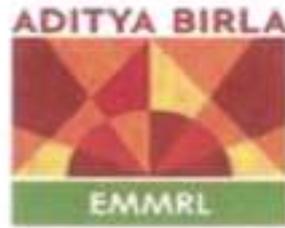


Plate No- XXII (B)

This is to certify that this is correct as all appear in per available records

Project: EMIL Miner And Mineral Resources Limited Section: MINING PLAN FOR HANBERG OPEN PIT		Date: 12/01/2011
Drawn: CHITRA K. S. S. S. Checked: CHITRA K. S. S. S. Scale: AS SHOWN	Project: EMIL Miner And Mineral Resources Limited Section: MINING PLAN FOR HANBERG OPEN PIT Date: 12/01/2011	Date: 12/01/2011
Prepared by: CHITRA K. S. S. S. Checked by: CHITRA K. S. S. S. Scale: AS SHOWN		Date: 12/01/2011
Project: EMIL Miner And Mineral Resources Limited Section: MINING PLAN FOR HANBERG OPEN PIT		Date: 12/01/2011



Bandha Coal Project

Scheme

For

SCHEME FOR NO DAMAGE SHALL BE CAUSED TO THE TOP SOIL AND THE USER AGENCY WILL FOLLOW THE TOP SOIL MANAGEMENT PLAN

in compliance

with

Condition No. XV (e) of

Stage-I approval granted vide

Letter No.8-17/2023-FC, Dated- 01.10.2024

of Govt. of India, Ministry of Environment, Forests

& Climate Change, New Delhi.

for

Diversion of 807.917 Ha. (Instead of 785.49 Ha)

of Forest Land within 1850.94 Ha of ML area of Bandha OCP

for Non forestry use U/s-2 (ii) of FC Act-1980

in villages Bandha, Pidarwaha, Tenduha , Deori and Pachaur

In Sarai Tehsil

Singrauli District, Madhya Pradesh (MP)

M/s. EMIL Mines And Mineral Resources Limited (EMMRL)

SCHEME FOR NO DAMAGE SHALL BE CAUSED TO THE TOP SOIL AND THE USER AGENCY WILL FOLLOW THE TOP SOIL MANAGEMENT PLAN

1. INTRODUCTION

Bandha Open Cast Coal Mine is a Greenfield opencast mining project spread over a lease area of 1850.94 Ha. in Bandha, Tenduha, Pidarwah, Deori and Pachaur villages and Mohanban RF, Tehsil Sarai, Dist-Singrauli, MP.

Ministry of Coal, Government of India has allotted this coal block in favour of M/s. EMIL Mines and Minerals Pvt Ltd (EMMRL) vide allotment order no. NA-104/5/2020-NA dated 03rd March 2021.

As per approved Mining Plan and Mine Closure Plan, the mine life is 45 years. Out of total 1850.94 Ha. of Mining Lease area, total forest land involved is 807.917 Ha out of which 804.367 ha forest land in RF-389, 390, 290, 291, 292, 293, 294, 296, 319, 320, 391, 392 & PF-316, 317 of Forest Range Waidhan/ Sarai East and 3.55 ha Revenue Forest in various Khasras.

M/s. EMMRL submitted the Forest Diversion proposal to obtain Forest Clearance from MoEF & CC, Government of India for 807.917 Ha. of forest land U/s 2(ii) of the Forest (Conservation) Act 1980.

The Stage-I Forest Clearance over 807.917 ha of Forest Land Under Section- 2 (ii) of the Forest (Conservation) Act, 1980 has been granted by MoEF & CC, Government of India vide their Letter No. 8-17/2023-FC I/83491/2024, dated 01.10.2024.

Condition No. XV (e) of FC Stage- I stipulates that No damage shall be caused to the top-soil and the user agency will follow the top soil management plan.

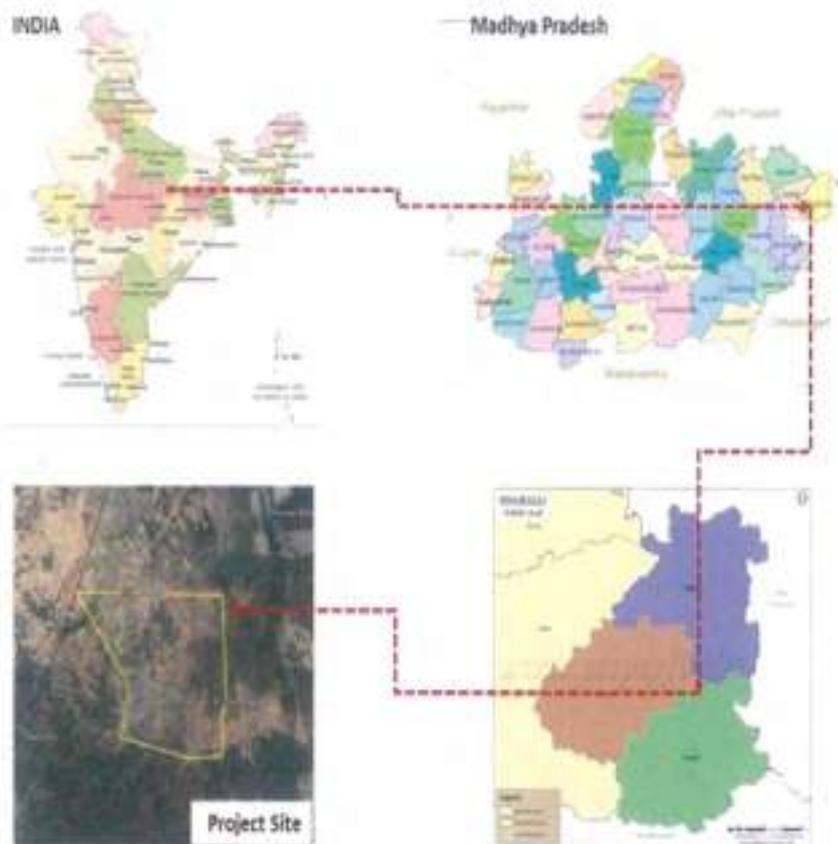
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The mining lease area is covered in the Survey of India toposheet no.63 I/8 (R.F. 150000) and open series toposheet nos. G-44W8 (M2, M4, N2, S1, S2, R1, R3, R4) (R.F. 15,000). and situated between the Lat. 23°46'37" N & 24°13'17" N and Long. 81°45'24" E & 82°47'50" E. The above ML area comes within the villages Bandha, Tenduha, Pidarwah, Deori & Pachaur, in Tehsil Sarai, Dist.: Singrauli, MP.

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About 43 percent of the Bandha block area is covered by forest land. The remaining approx. 57 percent of the block area is tenancy land and govt. Land. The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the block varies from 405.00m to 475.00m above MSL.



Mine	Bandha Coal Mine
Village(s)	Bandha, Tenduha, Pidarwah, Deori & Pachaur
Tehsil:	Sarai
District	Singrauli
State	Madhya Pradesh
Nearest Habitation	Within Coal Mine area
Nearest Railhead	Deoragram (between Bargawan & Sarai stations) (~1 km by road)
Nearest Highway	Metalled road 3.6 Km in S direction NH 75 (~40 km E by road)
Nearest Airport	: Varanasi (~250 km) by Road

Figure 1: Location of the Mine

4. LAND USE PATTERN

The proposed land use pattern of 1850.94 Ha. of mining lease area as per approved Mining Plan and Mine Closure Plan is given below:

Table 1: Land use details.

Component wise breakup			
S.no	Component	Forest Land (ha.)	Non-Forest Land (ha.)
1	Railway Siding	0.54	15.46
2	Rationalisation area	77.684	0
3	External Dump	183.75	166.51
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6	Infrastructure + Settling Pond	0	77.619
Total		807.917	1043.02
Grand Total (Forest+ Non-Forest)		1850.94 Ha	

5. Soil Type:

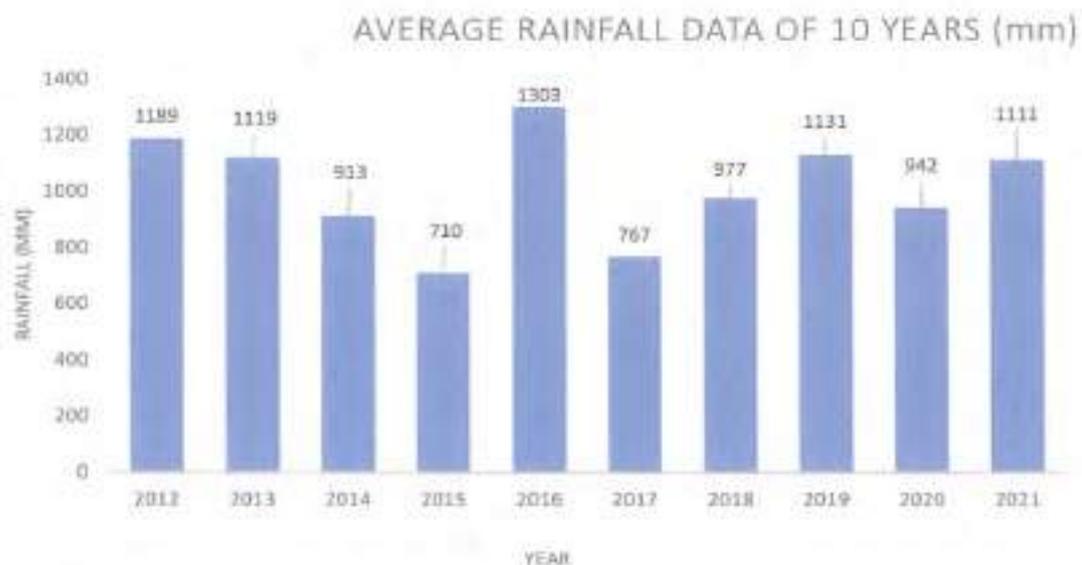
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The area experiences a tropical to semi-tropical climate characterized by varying temperatures throughout the year. Minimum temperatures in December to January drop to around 4°C or lower, while maximum temperatures peak in May to June, reaching approximately 45°C or higher. Singrauli district receives an average annual rainfall of 1132.7 mm, with the majority falling from June to October. Relative humidity ranges from 19% in May to 85% in July and August.

During summer, regions at lower altitudes experience higher temperatures, occasionally affecting plantation efforts negatively. Winter generally remains pleasant, although certain low-lying areas near depressions and along the nalas can experience frost during cold spells, although infrequently.



7. Drainage:

The drainages of the block are controlled by Bandha Nala and 1st and 2nd order streams of Kachanmuda Nala. Bandha Nala flows from south to north inside the block and then east to west near Ujheni village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village north-west of the block.

Bandha Coal Mine has dendritic to sub-dendritic drainage pattern. The nearest rivers are Mahan Nadi at a distance of 3.5 in West, Rampa River at a distance of 700m in South, Sukhra Nadi at a distance of 5 Km in South-West, Hariya Nadi at a distance of 7.3 Km in West, Kanchan Nadi at a distance of 5.1 Km in NE of the block.

8. PLAN FOR TOP SOIL MANAGEMENT

The total volume of Alluvium soil proposed to be excavated is 21.00 Mm³, among which 16.5 Mm³ is from the proposed mining and excavation activity and 4.5 Mm³ is from proposed external OB Dump areas. This top soil will be stored separately and used to cover the reclaimed dumps during mine closure activities. Top soil will be preserved by planting sewing grass seeds on slopes of top soil dump. Top soil dumps will have slope around 28°. Top soil will be preserved as per top soil management method as mentioned detailed below.

9. OBJECTIVES

The objectives of Top soil management to be executed are as follows:

- i) To meet the stipulation No. XV (e) of Stage-I Forest clearance accorded vide letter No.8-07/2023-FC dated 01.10.2024 of MoEF & CC, Government of India, New Delhi i.e., **"No damage shall be caused to the top soil and the User Agency will follow the Top soil management Plan"**.
- ii) To identify top soil resources and to follow correct procedure for optimum recovery.
- iii) To manage and conserve the top soil reserves by implementing biological measures.
- iv) To provide sufficient stable top soil for reclamation work of dumps, back filled areas and degraded lands.

10. MANAGEMENT OF TOP SOIL TO BE GENERATED FROM MINING

This Topsoil Management Plan has provision for soil stripping and stockpiling procedures to minimize top soil degradation and maximize availability of suitable soil for future reclamation.

The top soil available will be excavated during the development of unbroken patches within the mining lease. Precautionary measures will be taken so that this valuable resource is not wasted. This excavated top-soil will be utilized for concurrent reclamation works in the mine as per this plan. The top soil will be stored temporarily until it is being used for reclamation. The total top soil generated from the total excavation area of 1315 ha. is approx. 21 Mcum. The top soil management as per the approved Mining Plan and Mine Closure Plan has been furnished as below:

Prior to stripping, the area will be cleared by removing the weed growth. The proposed procedure for soil handling is given below which includes soil handling measures in order to optimize retention of soil characteristics (in terms of nutrients and micro-organisms) conducive to growth of plant.

11. METHODOLOGY

- i. Top soil stockpile is identified outside quarry area but within mining lease area.
- ii. Stripping off the topsoil by dozer or by small shovel dumper combination rather than scrapers to minimize structural degradation;
- iii. Improvement of drainage and promotion of re-vegetation.

- iv. Stabilization of Top soil surface by biological measures i.e., by sowing seeds of grass with other eco-compatible species.
- v. To utilize stripped top soil as soon as possible for reclamation in a phased manner in accordance with the reclamation plan as prescribed in the approved Mine Plan & Mine Closure Plan.

In accordance with the above objectives of providing sufficient stable soil for reclamation and to optimize soil recovery, the above strategies have to be followed.

12. TOP SOIL MANAGEMENT and Conservation PLAN

The top soil is removed in a phased manner throughout the mine life period of 45 years and is temporarily stored in an earmarked area of 19.74 ha. within the mine lease area. Simultaneously, the accumulated top soil will be re-handled and spreading over the mine out backfilled area started from 10th production year onwards. The maximum accumulation in the running stock of top soil in the temporary storage area is approx. 7.8 M cum. The maximum height of the storage dump is 5 mtr.

At any point of time, the total slope area of the top soil dump shall not be more than 5.7 Ha hence provision shall be made for sowing with grass seeds over an area of 6 Ha. to mitigate soil erosion of top soil.

Leguminosae (Fabaceae) like Green gram (Vigna radiate), Black gram (Vigna mungo), Horse gram (Macrotyloma uniflorum) and broadcasting of seeds of local shrubs / grasses will be sown in the slope of the top soil storage area.

Table-2. Year wise Top Soil generation and Utilisation.

Year/Stage		Top Soil Removal Plan	Top Soil Used				Total Utilised
(Life of the mine plus post closure Period)			Spreading Over Embankment	Spreading Over Backfill area	Spreading Over External OB Dump area	Used in Green Belt area	
Up to Base year	2025-26						
C-1/Yr-1	2026-27	0.2					
Yr-3	2028-29	1.5					
Yr-5	2030-31	3				0	
Yr-10	2035-36	8.35			0.55	0.55	
Yr-15	2040-41	10.3		0.5	2	2.5	
Yr-20	2045-46	12.4		0.9	3.7	4.6	
Yr-25	2050-51	14.4		2.9	3.7	6.6	
Yr-30	2055-56	16.2		5.5	3.7	9.2	
Yr-35	2060-61	18.1		8.5	3.7	12.2	
Yr-40	2065-65	20.2		10.8	4.8	15.6	
Yr-45	2070-71	21		16.2	4.8	21	
Post Closure							
Yr-50	2075-76	21		16.2	4.8	21	

A dry toe wall of loose boulders with cement sand patching over the surface of the wall having a length of 1870 m. and height 1 meter will be constructed around top soil stock pile to prevent sliding of the staked material. The cost norm of Toe wall has been incorporated within mine closure cost.

The topsoil stripping will be completed by using bulldozers and tippers of smaller. In areas where the topsoil is relatively thin, the same will be removed in such a way so as to prevent mixing of topsoil and sub-soil.

As mentioned above, the top soil shall be collected in a phased manner as per working of mine based on approved Mining Plan and shall be spread over the backfilled areas progressively according to approved Mine closure plan. These operations shall be done utilising internal resources like deployment of HEMM vehicles etc. for which the cost likely to be incurred is included in approved Mine Plan and Mine Closure Plan.

13. EXECUTING AGENCY

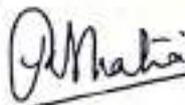
The work will be executed by M/s EMMRL through dedicated departments manned by technically qualified persons with outsourced man and machinery as and when required. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.



Cost Estimate

Sr. No.	Description of Work	Cost (Rs)	Annexures
1	Cost of grass sowing on the top soil storage area of 19.4 Ha @ 27,000 /ha /annum for 10 th , 20 th and 30 th year	1571400	Annexure-1
2	Cost of erection of 1870 m toe wall around top soil stock	6794065.3	Annexure-2
	Sub-total	8365465.3	
	Escalation 20%	1673093.06	
	Grand Total	10038558.36	

Note: The above expenses have been included in the Approved Mining Plan and Mine Closure Plan under biological reclamation and plantation.




Project Head, EMMRL, Bandha Coal Block

Annexure-1

COST OF GRASS SEED SOWING PER Ha.

Sl. No.	Purpose	No of Labour/ Quantity of materials	Rate (Rs.)	Amount (Rs.)
1	Spreading of good earth and FYM including carriage	20 Nos	450	9000
2	Adding FYM and good earth	2 TL FYM	1,000/ TLFYM	4000
		2 TL good earth	1,000/TL Good earth	
3	Cost of grass seed 50 kg/Ha.		100/kg	5000
4	Broadcast sowing	20 nos.	450	9000
Amount per Ha				27000

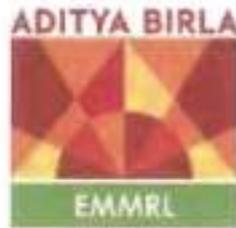
Cost of sowing grass seed in 19.4 Ha for top soil dump management= Rs 27000 x 19.4 Ha =Rs 15,71,400

Annexure-2

- Toe Wall construction all around top soil dump

DETAIL ESTIMATE OF TOE WALL OF LOOSE LOCAL BOULDER WITH CEMENT-SAND PATCHING OVER THE SURFACE OF BOULDER WALL									
Wage Rate Rs.450/Day									
Sl. No	Description of items	No	Length	Width	Height	Qty	Unit	Rate	Amount (Rs.)
1	Earth work is hard soil or gravelly soil within 50 mtr. initial lead & 1.50 mtr. initial lift including rough dressing & breaking clods to maximum 5.00cm to 7.00 cm & laying layers not exceeding 0.30mtr in depth and as per the direction of the engineer -in-charge.	1	1000	0.7	0.7	CUM	490	167.81	82226.9
2	Filling in foundation and plinth with sand watered and rammed	1	1000	0.7	0.075	CUM	52.5	323.11	16963.275
3	Cement concrete M-10 grade (PCC 1:4:8 for foundation) with crushed broken granite coarse aggregate of size 40 mm downgraded mixed in concrete mixture including cost conveyance and royalty of all materials, machineries and labour and laying in head works and canal structures with required lifts and de-lifts as per direction of Engineer-in-charge.	1	1000	0.6	0.075	CUM	45	3746.5	168592.5
4a	BRICK WORK for foundation having crushing strength not less than 75 kg/cm ² with dimensional tolerance ± 8 percent in cement mortar (1:6) in foundation and plinth per cum.	1	1000	0.5	0.3	CUM	150	3592.4	538860
4b	BRICK WORK for foundation having crushing strength not less than 75 kg/cm ² with dimensional	1	1000	0.375	0.3	CUM	112.5	3592.4	404145

	tolerance \pm 8 percent in cement mortar (1:6) in foundation and plinth per cum.								
5	BRICK WORK for S/S, having crushing strength not less than 75 kg/cm ² with dimensional tolerance \pm 8percent in cement mortar (1:6)in foundation and plinth per cum	1	1000	0.25	1	CUM	250	3592.4	898100
6	Concrete for plinth M-20 grade with crushed broken granite coarse aggregate of size 20mm downgraded mixed plant including cost of all materials, machineries and labour and transportation of mixed concrete	1	1000	0.25	0.1	CUM	25	4496.7	112417.5
7	Concrete for coping M-20 grade with crushed broken granite coarse aggregate of size 20mm downgraded mixed plant including cost of all materials, machineries and labour and transportation of mixed concrete	1	1000	0.35	0.025	CUM	8.75	4496.7	39346.125
								Total:	22,60,651.30
								2260651.3/280 X 450	36,33,189.59
Construction of Toe wall around soil dump per m									3633.19

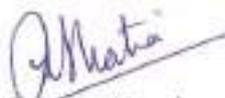


Annexure-24

UNDERTAKING NO DAMAGE SHALL BE CAUSED TO THE TOP SOIL AND THE USER AGENCY WILL FOLLOW THE TOP SOIL MANAGEMENT

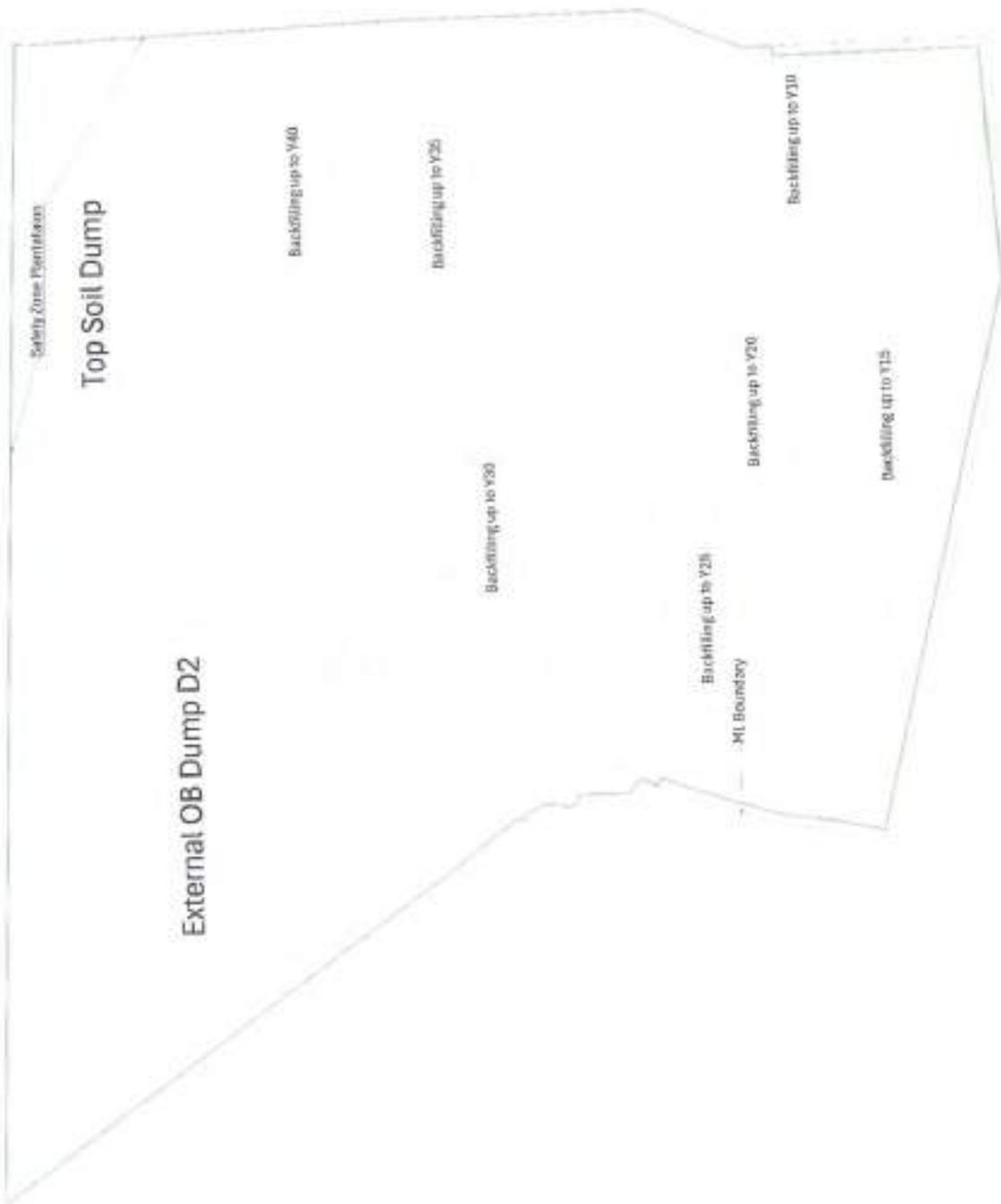
In Compliance to **condition no-xv (e)** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake that no damage will be caused to the top soil and the user agency will follow the top soil management practices.


Project Head



EMMRL Bandha Coal Block



Safety Zone Perimeter

Top Soil Dump

External OB Dump D2

Backfilling up to Y40

Backfilling up to Y25

Backfilling up to Y30

Backfilling up to Y38

ML Boundary

Backfilling up to Y20

Backfilling up to Y10

Backfilling up to Y15

Safety Zones Plantation

Top Soil Dump



External OB Dump D2



M. Boundary





कार्यालय वन मण्डल अधिकारी वन मण्डल सिंगरौली(म0प्र0)

गाजन मोड़ जिला पंचायत के बगल में
ईमेल-dfot.sgl@mp.gov.in फोन-07805-233336 फैक्स-233335

सूचना का
अधिकार

Annexure – 25

The forest compartment (RF: 389, 390,391,392) in the southern and (RF: 319, 320,293, PF: 316) in western part of Bandha Coal block are having crown density upto 0.4 as per current working plan of Singrauli.


वन मण्डल अधिकारी
वन मण्डल सिंगरौली



Bandha Coal Project

Scheme

For

SCHEME FOR DE-SILTING OF VILLAGE TANKS AND OTHER WATER BODIES
LOCATED WITHIN 05 KM FROM THE MINE LEASE BOUNDARY SO AS TO MITIGATE
THE IMPACT OF PROJECT AND SILTATION OF SUCH TANKS/ WATER BODIES

in compliance

with

Condition No. XVIII and XXI

Stage-I approval granted vide

Letter No.8-17/2023-FC, Dated- 01.10.2024

**of Govt. of India, Ministry of Environment, Forests
& Climate Change, New Delhi.**

for

Diversion of 807.917 Ha. (Instead of 785.49 Ha)

of Forest Land within 1850.94 Ha of ML area of Bandha OCP

for Non forestry use U/s-2 (ii) of FC Act-1980

in villages Bandha, Pidarwaha, Tenduha , Deori and Pachaur

In Sarai Tehsil

Singrauli District, Madhya Pradesh (MP)

M/s. EMIL Mines And Mineral Resources Limited (EMMRL)

SCHEME FOR DE-SILTING OF VILLAGE TANKS AND OTHER WATER BODIES LOCATED WITHIN 05 KM FROM THE MINE LEASE BOUNDARY SO AS TO MITIGATE THE IMPACT OF PROJECT AND SILTATION OF SUCH TANKS/ WATER BODIES

1. INTRODUCTION

Bandha Open Cast Coal Mine is a Greenfield opencast mining project spread over a lease area of 1850 Ha. in Bandha, Tenduha, Pidarwah, Deori and Pachaur villages and Mohanban RF, Tehsil Sarai, Dist- Singrauli, MP.

Ministry of Coal, Government of India has allotted this coal block in favour of M/s. EMIL Mines and Minerals Pvt Ltd (EMMRL) vide allotment order no. NA-104/5/2020-NA dated 03rd March 2021.

As per approved Mining Plan and Mine Closure Plan, the mine life is 45 years. Out of total 1850 Ha. of Mining Lease area, total forest land involved is 807.917 Ha out of which 804.367 ha forest land in RF-389, 390, 290, 291, 292, 293, 294, 296, 319, 320, 391, 392 & PF-316, 317 of Forest Range Waidhan/ Sarai East and 3.55 ha Revenue Forest in various Khasras.

M/s. EMMRL submitted the Forest Diversion proposal to obtain Forest Clearance from MoEF & CC, Government of India for 807.917 Ha. of forest land U/s 2(ii) of the Forest (Conservation) Act 1980.

The Stage-I Forest Clearance over 807.917 ha of Forest Land Under Section- 2 (ii) of the Forest (Conservation) Act, 1980 has been granted by MoEF & CC, Government of India vide their Letter No. 8-17/2023-FC I/83491/2024, dated 01.10.2024.

As per Condition No. XVIII and XXI for undertaking de-silting of village tanks and other water bodies located within 05 km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/ water bodies.

2. LOCATION

The mining lease area is covered in the Survey of India toposheet no.63 I/8 (R.F. 150000) and open series toposheet nos. G-44W8 (M2, M4, N2, S1, S2, R1, R3, R4) (R.F. 15,000). and situated between the Lat. 23°46'37" N & 24°13'17" N and Long. 81°45'24" E & 82°47'50" E. The above ML area comes within the villages Bandha, Tenduha, Pidarwah, Deori & Pachaur, in Tehsil Sarai, Dist.: Singrauli, MP.

3. TOPOGRAPHY

The Bandha coal block, situated in the northeastern part of the main basin, has been explored through boreholes revealing intersections from the Raniganj to Barakar formations. Geomorphologically, the district is characterized by hilly terrain, predominantly covered by the Kaimur hilly ranges, which divide the area into three physiographic divisions: the northeastern Kaimur ranges, central hill ranges, and southern hilly ranges.

About 43 percent of the Bandha block area is covered by forest land. The remaining approx. 57 percent of the block area is tenancy land and govt. Land. The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The general ground elevation of the block varies from 405.00m to 475.00m above MSL.

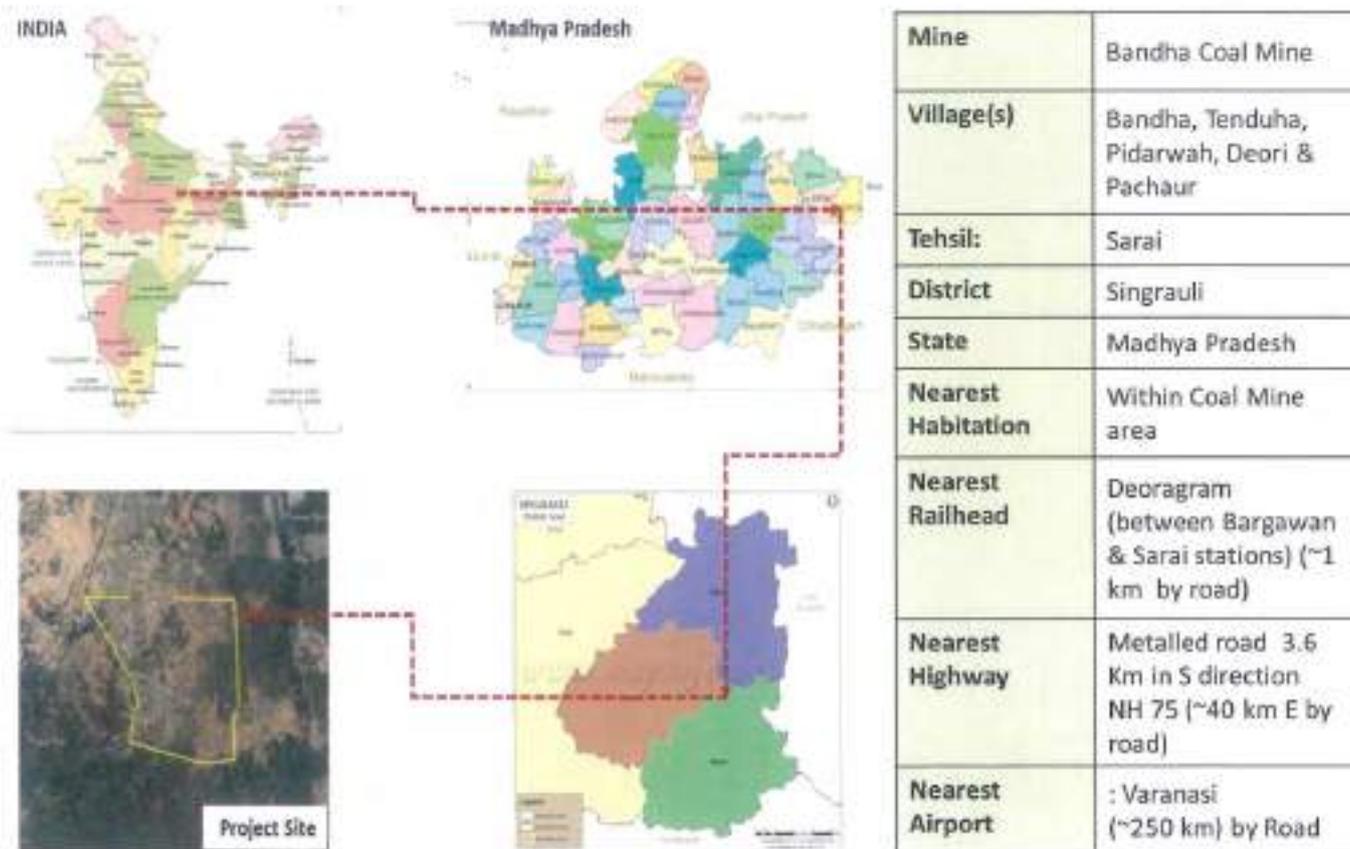


Figure 1: Location of the Mine

4. LAND USE PATTERN:

Component wise breakup			
S.no	Component	Forest Land (ha.)	Non-Forest Land (ha.)
1	Railway Siding	0.54	15.46
2	Rationalisation area	77.684	0
3	External Dump	183.75	166.51
4	Safety Zone	7.48	6.532
5	Pit/Internal Dump	538.463	776.899
6	Infrastructure + Settling Pond	0	77.619
Total		807.917	1043.02
Grand Total (Forest+ Non-Forest)		1850.94 Ha	

5. Soil Type:

The Singrauli District is generally covered with Alluvial soil, red Sandy soil and yellow loamy Sandy soil, laterite soil and red loam soil. The district comprises sedimentary, crystalline and metamorphic rocks, weather into red soil. Similarly, the red colour of the laterite soil is more due to diffusion of Iron compounds rather than due to high proportion of Iron oxides. The alluvial soil is mostly restricted by along the banks of major rivers, whose thickness varies from few meters to 25 meters. Major soil type of the district is red soil, Alluvial & Lateritic soil.

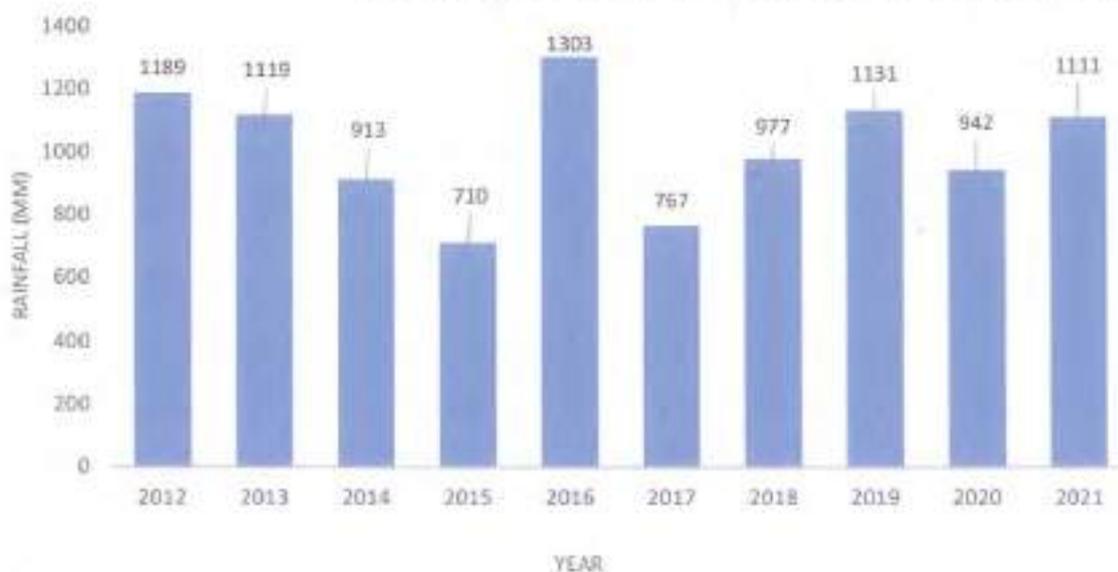
About 43% part of the Bandha block area is covered by forest land. The remaining 57% (approx.) part of the block area is used either as agriculture land or village land (as in habitat). The surface exhibits a moderately undulating topography with reddish soil and sporadic occurrences of sandstone exposures. The soil is ferruginous sandy soil, typical of the area.

6. Climate & Rainfall:

The area experiences a tropical to semi-tropical climate characterized by varying temperatures throughout the year. Minimum temperatures in December to January drop to around 4°C or lower, while maximum temperatures peak in May to June, reaching approximately 45°C or higher. Singrauli district receives an average annual rainfall of 1132.7 mm, with the majority falling from June to October. Relative humidity ranges from 19% in May to 85% in July and August.

During summer, regions at lower altitudes experience higher temperatures, occasionally affecting plantation efforts negatively. Winter generally remains pleasant, although certain low-lying areas near depressions and along the nalas can experience frost during cold spells, although infrequently.

AVERAGE RAINFALL DATA OF 10 YEARS (mm)



7. Drainage:

The drainages of the block are controlled by Bandha Nala and 1st and 2nd order streams of Kachanmuda Nala. Bandha Nala flows from south to north inside the block and then east to west near Ujheni village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village north-west of the block. Bandha Coal Mine has dendritic to sub-dendritic drainage pattern. The nearest rivers are

Mahan Nadi at a distance of 3.5 in West, Rampa River at a distance of 700m in South, Sukhra Nadi at a distance of 5 Km in South-West, Hariya Nadi at a distance of 7.3 Km in West, Kanchan Nadi at a distance of 5.1 Km in NE of the block.

7. FACTORS RESPONSIBLE FOR SILTATION

Siltation is an inherent problem with ponds, lakes and almost all types of water reservoirs world over. Siltation occurs due to deposition or settling of soil eroded from the land mass, decaying fallen leaves, grass and other vegetative materials and decomposed organic materials settled on pond bottoms. Soil erosion may be attributed as the primary factor responsible for pond siltation in this area. Higher gradient and excess rainfall are the most common reasons of soil erosion. Erosion of Soil occurs from the waste dumps, excavated areas and naturally denuded ground surface. However, looking into the current problem of siltation of the village ponds, the major factors are the surface runoff containing silt particles entering into the pond. As the age of the ponds increases, new layers of silt accumulate on the older ones and the silt layers become thicker. Finally, the depth of the pond decreases and it loses its water storage capacity. At this time, it needs to be de-silted to recover. The best practice against siltation is to de-silt the bottom of the pond at regular intervals as well as taking adequate preventive measures.

8. DETAIL OF PONDS/ WATER BODIES WITHIN 5 KMS BUFFER AREA

For the purpose as mentioned in Condition No. XVIII – XXI of the Stage-I approval letter, a list of 55 village tanks/ water bodies situated within the buffer area of 5 Kms from the lease boundary is prepared based on Topographical Map. The Topographical Map showing 5 kms buffer area of Bandha OCP is attached, wherein, location of 55 ponds and water bodies have been identified. The list of 55 ponds and water bodies with corresponding coordinates is provided as **Annexure-1**.

9. POSSIBILITY OF SILTATION OF THE VILLAGE PONDS / WATER BODIES DUE TO MINING ACTIVITIES

The drainages of the block are controlled by Bandha Nala. Bandha Nala flows from south to north inside the north-western corner of the block and then east to west near Ujhni village north of the block. Finally, Bandha nala discharges into Mahan River near Tingudi village north-west of the block.

Bandha Coal Mine has dendritic to sub-dendritic drainage pattern. The nearest rivers are Mahan Nadi at a distance of 3.5 in West, Rampa River at a distance of 700m in South, Sukhra Nadi at a distance of 5 Km in South-West, Hariya Nadi at a distance of 7.3 Km in West, Kanchan Nadi at a distance of 5.1 Km in NE and Bandha Nala and Kanchanmuda Nala passing through the site (Seasonal). The drainage pattern is given in below.

Bandha Nala is to be strengthened by making embankment, etc. for safe operation of mine. A very small up-stream of Kanchanmuda falls within the Bandha block. Therefore, there is no need of any diversion of Bandha Nala and re-coursing may be done for restoring hydrogeological pattern of the area. Mine is planned in such a way that the total surface water available in pre mining should be same during mining and post mining period. In pre mining the present nala is seasonal which will become perennial with addition mine seepage water during mining period.

10. METHODOLOGY

It is proposed to carry out the total de-siltation of the tanks/water bodies every five years during summer when the ponds shall dry up exposing the silts. The dried silt shall be removed manually or mechanically based on the ground condition. In case of mechanical removal of silt, small excavators such as back-hoe / small hydraulic shovels or pay loader, depending upon the quantity of silt accumulation shall be used.

The work shall comprise: -

- a) Total de-siltation in the five-year period.
- b) Implementing preventive measures during the following four years to minimize re-siltation of the ponds.

It is proposed that the ponds having accumulation of over 1000 m³ shall be de-silted by mechanical means and the rest shall be handled manually. It is proposed to deploy one 0.9 m³ back hoe with one 10 tonne tipper for de-silting of the pond in a period of two-three days. The machines shall be deployed in a planned manner to complete the work in a shortest time frame. Necessary advice of competent authority will be taken into account.

In case of smaller ponds, where the accumulation of silt is very small, the de-siltation operation shall be done manually by engaging sufficient manpower.

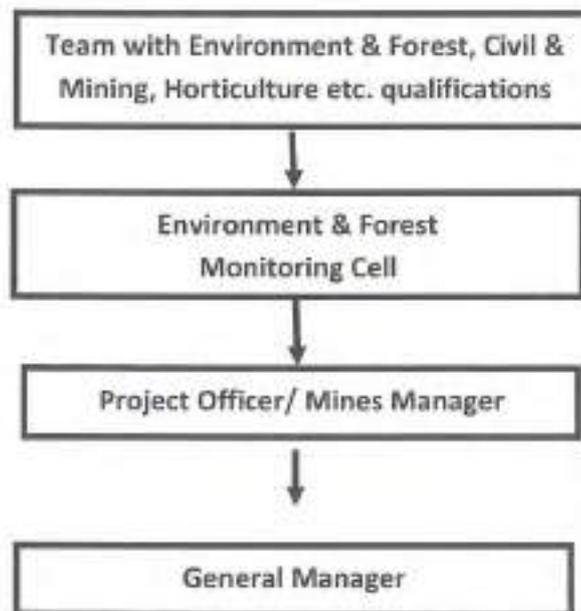
The ponds shall be allowed to dry up completely during the early summer i.e. during March and April followed by de-siltation in the above-described manner.

- a) **1st Year Plan & Management:** The first-year work shall also comprise the following preventive measures to minimize siltation.
 - Providing embankment to the ponds where ever necessary.
 - Strengthening the existing pond embankment to check external flow of surface run-off in to the pond.
 - Regular removal of aquatic weeds and polythene bags / bottle thrown by villagers.
- b) **Subsequent 2 Years Plan and Management:** In the subsequent 2 years, the rate of siltation shall be negligible, which can be dealt by manual methods using the local labourers. This will also otherwise help in employment generation.
- c) **Preventive Measures & Maintenance:** It is essential to take up preventive measures in order to minimize re-siltation of the ponds.
- d) **Dewatering of village pond:** This will be carried out by engaging dewatering pump, if necessary.
- e) **De-silting:** After pumping out the water from the pond, silts are to be removed either manually by deploying labour or excavator & dumper combination.
- f) **Earthwork Excavation:** Wherever required, soil has to be removed for deepening the pond to increase water holding capacity of the pond.

11. EXECUTING AGENCY:

The work will be executed by the User Agency i.e. M/s Mahanadi Coalfields Limited through dedicated departments manned by technically qualified persons with outsourced man and machinery as and when required. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

EXECUTING AGENCY



Annexure-1

Details of the Water body located within the 5 km radius from the outside of the ML Boundary

Sr. No	Pond No.	Position X	Position Y
1	1	635516.782	2671524.49
2	2	635885.533	2671671.599
3	3	635428.065	2671169.858
4	4	635246.77	2671032.128
5	5	636163.11	2671360.061
6	6	637364.388	2672197.065
7	7	638310.225	2672424.488
8	8	639279.676	2672441.674
9	9	639291.103	2672424.064
10	12	634112.439	2668883.85
11	13	635060.441	2669231.514
12	14	635246.456	2669627.215
13	15	635698.26	2669870.256
14	16	637174.968	2669526.789
15	17	637379.694	2669308.284
16	18	637628.528	2669298.32
17	19	638285.326	2669422.574
18	20	638376.696	2669161.054
19	21	635326.957	2667603.405
20	22	635933.965	2668329.783
21	23	636224.027	2668560.139
22	24	637321.542	2668554.444
23	25	637942.248	2668396.332
24	26	637335.08	2668110.658
25	27	636578.781	2667664.07
26	28	637667.573	2667862.983
27	29	637995.925	2668010.882
28	30	640169.263	2667675.913
29	31	640974.778	2667725.379
30	32	641283.883	2667790.539
31	33	637949.955	2667369.772
32	34	638381.102	2667268.059
33	35	635240.969	2666567.676
34	36	635288.548	2666068.97
35	37	635280.676	2665992.954
36	38	636073.366	2666151.131
37	39	638232.581	2666451.374
38	40	638500.088	2665271.11
39	42	634758.641	2664601.877
40	43	639942.004	2663711.949

Cost Estimate

Total number of ponds within a 5 km radius of Bandha Coal Block is 40, with an average area of 0.3 hectares.

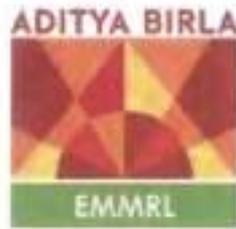
The cost of desiltation for one pond is ₹5,45,000 on an LS basis.

Estimate for de siltation of ponds			
SL No	Item	Rate Ls (Rs)	Amount (Rs)
1	No of Ponds for desiltation- 40	545000	21800000
	Subtotal		21800000
	Escalation @ 20%		4360000
	Grand Total		26160000

Adhata



Project Head, EMMRL, Bandha Coal Block

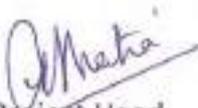


Annexure-26

UNDERTAKING SCHEME FOR DE-SILTING OF VILLAGE TANKS AND OTHER WATER BODIES LOCATED WITHIN 05 KM FROM THE MINE LEASE BOUNDARY SO AS TO MITIGATE THE IMPACT OF PROJECT AND SILTATION OF SUCH TANKS/ WATER BODIES

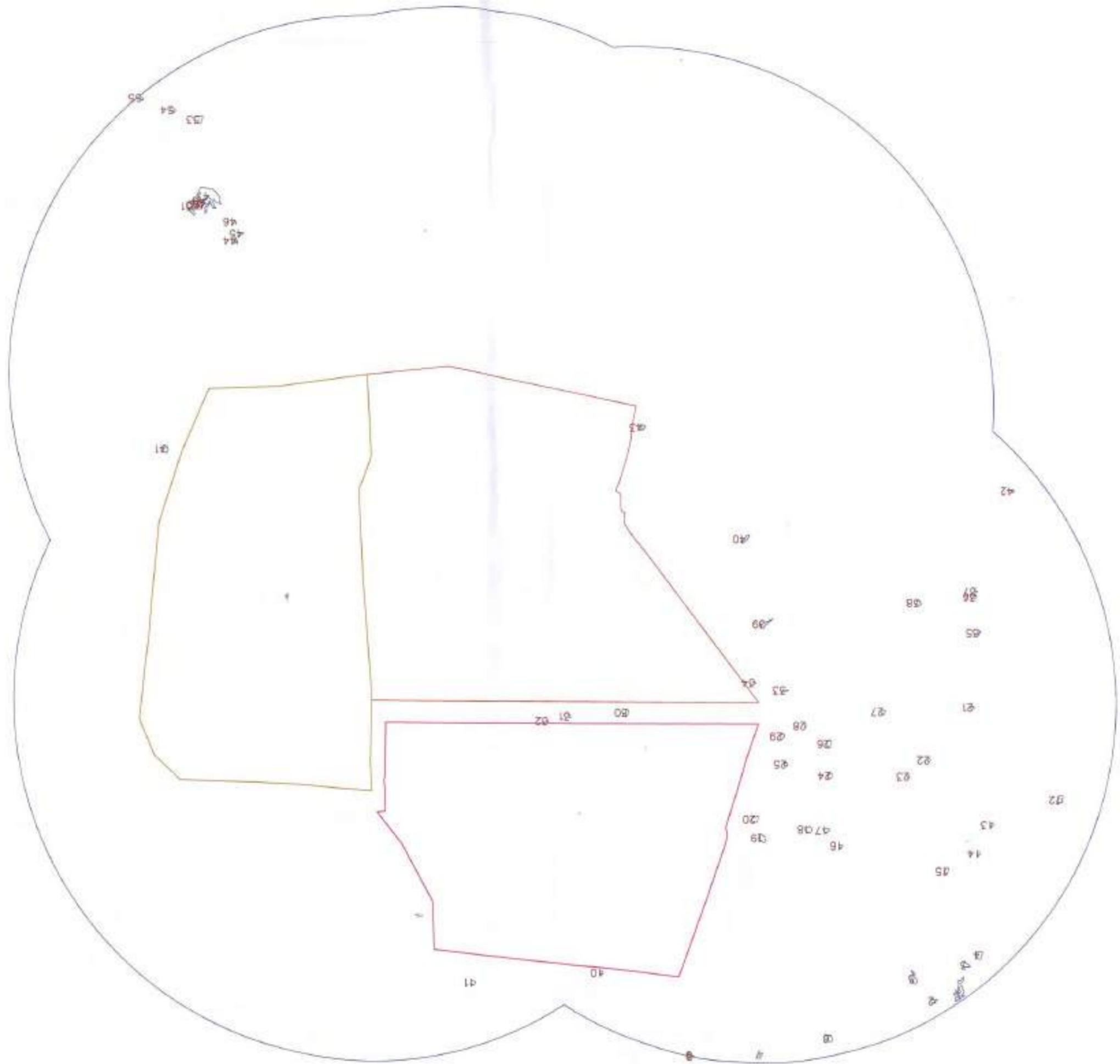
In Compliance to **condition no-xviii** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

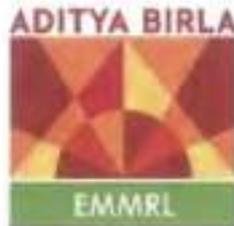
I hereby undertake to de-silting of village tanks and other water bodies located within 05 km from the mine lease boundary so as to mitigate the impact of project and siltation of such tanks/ water bodies


Project Head



EMMRL Bandha Coal Block



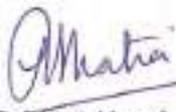


Annexure-27

UNDERTAKING THE USER AGENCY SHALL COMPLY WITH THE HON'BLE SUPREME COURT ORDER ON REGRASSING, AND RE-GRASS THE MINING AREA AND ANY OTHER AREAS WHICH MAY HAVE BEEN DISTURBED DUE TO MINING TO RESTORE THEM TO A CONDITION WHICH IS FIT FOR GROWTH OF FODDER, FLORA, FAUNA, ETC. IN A TIMELY MANNER

In Compliance to **condition no-xix** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to comply with the Hon'ble Supreme Court order on re-grassing, and re-grass the mining area and any other areas which may have been disturbed due to mining to restore them to a condition which is fit for growth of fodder, flora, fauna, etc. in a timely manner.


Project Head



EMMRL Bandha Coal Block

कार्यालय प्रधान मुख्य वन संरक्षक (कक्ष-भू प्रबंध), तुलसीनगर, मध्यप्रदेश, भोपाल

:: तकनीकी स्वीकृति आदेश ::

आदेश क्र./एफ-1/841/2023/10-11/

भोपाल, दिनांक

भारत सरकार द्वारा वन (संरक्षण) अधिनियम, 1980 के तहत दिनांक 08.03.2019 से प्रभावशील गार्ड लाईन के अनुसार प्रधान मुख्य वन संरक्षक एवं वन बल प्रमुख म0प्र0 भोपाल के आदेश क्रमांक/एफ-3/2019/10-11/03, दिनांक 31.05.2019 से प्रदत्त अधिकारों के अन्तर्गत गठित समिति की बैठक आयोजित की गयी। मुख्य वन संरक्षक, रीवा के पत्र क्रमांक/मा.चि./2025/2538 दिनांक 25.03.2025 द्वारा बंधा कोल ब्लॉक-आवेदक मेसर्स ई.एम.आई.एल. माइन्स एण्ड मिनरल्स रिसोर्सेस लिमिटेड, कलकत्ता के प्रकरण में भारत सरकार की शर्त अनुसार केचमेन्ट एरिया ट्रीटमेन्ट प्लान कार्य के परीक्षण उपरांत तकनीकी स्वीकृति निम्नानुसार प्रदान की जाती है :-

बंधा कोल ब्लॉक-आवेदक मेसर्स ई.एम.आई.एल. माइन्स एण्ड मिनरल्स रिसोर्सेस लिमिटेड, कलकत्ता के प्रकरण अंतर्गत प्रस्तावित जलग्रहण क्षेत्र उपचार योजना के कार्यों का विवरण		
Cost Estimate of SOIL AND MOISTURE CONSERVATION WORK for forest area		
S. No.	Particulars	Amount (Lac.)
1	Part 1	
(a)	Implementation of support Infrastructure Cost	1.50
(b)	Training and extension Programme	0.50
(c)	Microplan	0.80
(d)	Documentation	1.00
(e)	Gender Support	1.00
(f)	Provision for Monitiring and Evaluation	1.00
(g)	Capacity Building	1.20
	Sub-Total (1)	7.00
2	Part 2 (Soil and moisture Conservation works)	
(a)	Loose Boulder Structure (L.B.S.)	10.08
(b)	Talab	261.89
(c)	Percolation Tank	154.67
(d)	Other expenditures (Board, surveying, consultancy)	3.95
	Sub-Total (2)	430.59
3	Part 3 (Maintenance work of Soil and moisture Conservation works)	
(a)	Maintenance work of Soil and moisture Conservation works Second Year 2025-26	63.99
(b)	Maintenance work of Soil and moisture Conservation works Third Year 2026-27	85.33
	Sub-Total (3)	149.32
4	Part 4	
(a)	Strengthening of 3 JFMCS (Entry point Activities, development) – 5% of Treatment Cost	12.79
	Grand Total	599.70

उक्त तकनीकी स्वीकृति निम्नलिखित शर्तों के अधीन रहेंगी :-

- वन मंडल सिंगरौली के परिक्षेत्र बैढन/पूर्व सरई के विभिन्न RE/PF वन कक्षों/खसरों के रकबा 785.49 हेक्टेयर वनभूमि बंधा कोल ब्लॉक अन्तर्गत ओपन कास्ट कोयला उत्खनन के प्रत्यावर्तन का मेसर्स ई.एम.आई.एल. माइन्स एण्ड मिनरल्स रिसोर्सेस लिमिटेड, कलकत्ता के प्रकरण में मुख्य वन संरक्षक, रीवा द्वारा प्रस्तुत प्राक्कलन के प्रस्ताव पर दी जाती है। यदि प्लान मे कोई परिवर्तन स्थानीय परिस्थितियों को दृष्टिगत रखते हुए आवश्यक हो तो अनुमोदन उपरांत कराएं।

-2-

2. प्रस्तुत प्राक्कलन में वनक्षेत्र से बाहर प्रस्तावित कार्यो को आवेदक संस्थान द्वारा कराया जावेगा शेष कार्य वन विभाग द्वारा किये जावेंगे।
3. संबंधित वनमण्डलाधिकारी इस स्वीकृति के अधीन केचमेन्ट एरिया ट्रीटमेन्ट प्लान कार्य हेतु प्रशासकीय स्वीकृति प्राप्त होने पर प्राप्त राशि के अंतर्गत ही व्यय करेंगे, केवल तकनीकी स्वीकृति के आधार पर कार्य प्रारंभ न किया जावे। कैम्पा कक्ष द्वारा दिये आवंटन के अनुसार ही कार्य कराया जावे।
4. इस कार्य की उपयोगिता प्राक्कलन अनुसार कार्य के लिये है।
5. कार्य का संपादन तकनीकी स्वीकृति के साथ संलग्न प्राक्कलन एवं मानचित्र में दर्शित तकनीकी मापदण्डों के अनुसार कराया जावे। कार्य के दौरान स्थल की भौगोलिक स्थिति के अनुसार किसी प्रकार के परिवर्तन/संशोधन की आवश्यकता होने पर सक्षम अधिकारी से पूर्व अनुमति लेना अनिवार्य होगा।
6. केचमेन्ट एरिया ट्रीटमेन्ट प्लान अंतर्गत कार्य हेतु स्थल उपयुक्तता प्रमाण-पत्र प्राप्त कर ही कार्य किया जावे।
7. केचमेन्ट एरिया ट्रीटमेन्ट प्लान कार्य की गुणवत्ता पर सतत निगरानी रखी जावे।
8. कोई भी सामग्री क्रय करते समय भण्डार क्रय नियम का पालन करें।
9. कार्य प्रारंभ के पूर्व विस्तृत कार्यवार स्थल अनुरूप डी.पी.आर. तैयार कर कार्य प्रारंभ करावे।

Digitally signed by
Hari Shankar Mohanta
Date: 28-03-2025

17:06:10 (एच.एस.मोहन्ता)

अपर प्रधान मुख्य वन संरक्षक (भू-प्रबंध)
मध्यप्रदेश, भोपाल

पृ. क्रं./एफ-1/841/2023/10-11/
प्रतिलिपि:-

भोपाल, दिनांक

1. अपर प्रधान मुख्य वन संरक्षक (विकास), सतपुडा भवन, मध्यप्रदेश भोपाल।
2. अपर प्रधान मुख्य वन संरक्षक (कैम्पा), सतपुडा भवन, मध्यप्रदेश भोपाल।
3. मुख्य वन संरक्षक, (क्षेत्रीय) रीवा वृत्त, रीवा, मध्यप्रदेश।
4. वनमंडलाधिकारी, सामान्य वन मण्डल, सिंगरौली, मध्यप्रदेश की ओर अग्रेषित कर लेख है कि भारत सरकार की स्वीकृति में अधिरोपित शर्त अनुसार उक्त राशि ई-पोर्टल के माध्यम से कैम्पा मद में जमा कराई जावे।
5. मेसर्स ई.एम.आई.एल. माइन्स एण्ड मिनरल्स रिसोर्सेस लिमिटेड, कलकत्ता की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।



मप्र वन विभाग

वर्ष	-	2024-25
योजना का नाम	-	SOIL AND MOISTURE CONSERVATION WORK
वन परिक्षेत्र	-	पूर्व सरई
समिति का नाम	-	देवरी, पिडरवाह, लामीदह
बीट का नाम	-	देवरी, पिडरवाह,
कक्ष क्रमांक	-	RF 303,304,393,394,320,395
वनमण्डल का नाम	-	सिंगरौली (सामान्य)
परियोजना की कुल लागत (लाख में)	-	599.70

वन परिक्षेत्र पूर्व सरई- वनमण्डल सिंगरौली

Soil and moisture conservation work (SMC)

1. INTRODUCTION

The study of erosion and sediment yield from catchment is of utmost importance as the deposition of sediment in reservoir reduces its capacity, thus affecting the water available for the designated use. The eroded sediment from catchment when deposited on streambeds and banks causes braiding of river reach. The removal of top fertile soil from catchment also adversely affects the agricultural production. Another crucial factor that adds to the sediment load and which contributes to soil degradation is grazing pressure. Many cattle, sheep, and goats graze the pastures continuously for about six months in the region.

The lack of proper vegetal cover is a factor to cause degradation and thereby results in severe run off/soil erosion, and subsequently premature siltation of the reservoir. Thus, a well-designed Soil and moisture conservation work (SMC) Plan is essential to ameliorate the above- mentioned adverse cause and process of soil erosion. The catchment area treatment involves the understanding of the erosion characteristics of the terrain and suggesting remedial measures to reduce the erosion rate. For this reason, the catchment of the directly draining rivers, streams, tributaries, etc. are treated and the cost is included in the project cost.

The pre-requisite for a watershed management is the collection of multipronged data e.g.. geology, geomorphology, topography, soil, land use/land cover, climate, hydrology, drainage pattern, etc. The multi-pronged data generated from various published sources and actual data collected from these watersheds on the above-mentioned parameters forms the basis of the Action Plan for Catchment Area Treatment is presented here. Previously the SMC plan was submitted for entire Catchment Area and was accepted by SEAC/SEIAA, Madhya Pradesh and Environmental Clearance was accorded to this Project.

Soil and moisture conservation work (SMC) plans for the free draining catchment area of the proposed project has been prepared for areas with high soil erosion intensity. The SMC Plan targets towards overall improvement in the environmental conditions of the region. All the activities are aimed at treating the degraded and potential areas with severe soil erosion. The plan provides benefits due to biological and engineering measures and its utility in maintaining the ecosystem health. The plan with objectives addresses Issues such as prevention of gully erosion, enhancing the forest cover for increasing soil holding capacity; and arresting total sediment flow in the reservoir and flowing waters.

2. OBJECTIVES

Integrated watershed management plan minimizes the sedimentation of reservoir. The main aim of the Soil and moisture conservation work (SMC) 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:

- To facilitate the hydrological functioning of the catchment and to augment the quality of water of the river and its tributaries.
- 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.
- Demarcation of the priority of watersheds for treatment based on soil erosion intensity in the catchment area.
- Mitigation of landslide, landslip and rock falls
- Soil conservation through biological and engineering measures to reduce sediment load in river and tributaries, incidentally improving the quality of water.
- Ecosystem conservation resulting from increased vegetal cover and water retaining properties of soil.
- Promotion of non-conventional energy device to reduce pressure on forest.
- Employment generation through community participation and conservation.

3. CATCHMENT SCENARIO AND DRAINAGE

The Singrauli district as a whole lies on Son sub basin of the Ganga basin. On localize scale there is surface water divide from south west to north east passed to Waidhan and Chitrangi. The area north west of this divide forming almost 80% of the district, is drained by the **Gopad, Mahan** in to the son river and to the south east by the Rihand. The Son is perennial and Gopad is a ephemeral tendency is major part of its course. Most of the stream traversing in the area has their courses in rocky terrain with marginal sand cover in their channel section, except along the Son and Gopad where the sandy alluvium is comparatively thicker.

The **Gopad** has northerly course from the western boundary with Sidhi district it joins Son in the north. The river originate from Waidhan , the river flows through the granitic formation and then crosses the Viudhyans, formation before entering the alluvial plains. The main tributaries of the Gopad are **Mahan** which join the river near village Khamhariya kalan in chitrangi block.

4. COST OF COMPONENTS OF SMC PLAN

4(a) Implementation of support Infrastructure Cost

In order to execute the Soil and moisture conservation work (SMC), the forest department would be requested to establish a catchment area treatment cell for which the executing agency shall need necessary infrastructure support. Accordingly, provisions have been made for purchase of office equipment and survey equipment. For movement of the field staff and labour, forest footpath and bridges/culvers would need construction and repair. The cost of works proposed under the head works out to Rs.1.50 lakh.

4(b) Training and Extension Programme

There is a need to keep all members of the existing registered VFDCs and committees to be constituted in other villages and forest department officials involved in programme implementation so that they can play an active role in implementation of the SMC plan by associating with the development work in their areas. For this purpose, people need to be trained in respect of different measures for habitat improvement by afforestation techniques, nursery development, pasture development, soil conservation and moisture retention works, horticulture development and agriculture practices in respect of land under the SMC plan with special thrust to local technique with the use of indigenous material without deteriorating ecology of the area.

The technique of river-training work needs to be explained properly so that desired results are achieved. For this purpose, a training programme has to be properly devised and carried out at range office for which a provision of Rs. 0.50 lakh is being made.

4(c) Microplan

Based on the ground truth reality in each of the village forest department committee or society under different sub-watersheds, comprehensive micro plan for execution of the work must be prepared as per norms. The micro plan for each beats of sub-watershed shall be prepared in consultation with the members of concerned VFDCS with due regards to the environmental functions and productive potential of the forests and their carrying capacity. For this purpose, a provision of Rs. 0.80 lakh is being made.

4(d) Documentation

Emphasis should be laid on the publicity of the work proposed under the plan and work carried out on annual basis so that transparency is maintained and proper documentation of the work is also carried out for future reference and testing the efficacy of the work in due course of time. On this count a provision of Rs. 1.0 lakh is proposed. The documentation would inter alia include implementation report, progress reports, photography, videography etc. Publication of the work done may be distributed

to concerned panchayat and village Forest Development Committees/Societies for wider dissemination.

4(e) Gender Support

There is a need to keep women in center stage in programme implementation so that they can play an active role in preservation of the ecology as well as the socioeconomic development of the area. Considering the immense potential and genuine needs for women's participation in JFM programme, proper training with respect to work related to NTFP cultivation, animal husbandry, gardening and farm works etc. shall be imparted for which a provision of Rs. 1.00 lakh is being made.

4(f) Provision for Monitoring and Evaluation

The success of implementation of a SMC Plan can be fathomed by increase in vegetal cover on hill slopes and the enhancement. Various engineering and biological measures have been aimed at treating degraded and potential areas of severe to very severe soil erosion by increasing soil holding capacity and thus reducing sediment flow in the water. Therefore, for recording soil and silt data at regular intervals one small laboratory/observatory shall be established at dam site, where the regular discharges of the streams and silt samples shall be monitored twice a day for ten years.

A close watch on annual basis shall be maintained in respect of such areas where habitat improvement works have been carried out to verify the work executed on site itself and to ascertain the rate of survival of plants and/or any damage to the new work. For monitoring of works under forestry operation, the use of remote sensing technique by using digital satellite imagery of IRS P6 LISS-IV with high resolution (5.6 m x 5.6 m) should be made obligatory. The monitoring through satellite scene should be done before commencement of works under SMC plan and in a block of two years after completion of SMC plan. The work of monitoring of various works under the SMC plan should be entrusted to an external agency which has extensive experience of carrying out similar work on land use data and evaluating environment impact. A provision of Rs. 1.00 lakh 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.

4(g) Capacity Building

Since the effectiveness of the biological and engineering measures and their proper implementation will depend on the understanding and preparedness of the forest staff. It is important that the Forest Department makes efforts to sensitize the staff on implementation and management of issues, soil conservation, flood protection works and provide guidance and encourage them to build requisite capacities. Capacity building can be achieved through training programmes for which a provision of Rs. 1.2 lakh has been made in the plan.

5. Soil And Moisture Conservation Works

Soil and Moisture Conservation Works are state-of-the-art using the living vegetation, either alone or in conjunction with non-living plant material and civil engineering structures, to stabilize slopes and/or reduce erosion. Such measures utilize live plants and plant parts, either alone or in conjunction with non-living plant material and hand measures usually referred to as civil engineering structures, where they provide additional mechanical support to soil, present barriers to earth movement, function as hydraulic drains, and act as hydraulic pumps. Soil bioengineering systems use live plant cuttings, rooted plants, and plant stems that are placed in the ground, or in earthen or other structures that commonly incorporate inert materials such as rock, wood, geosynthetics, geo-composites or other products. Control of severe landslide or gully erosion usually requires engineering structures to avoid slope failure and gully cutting. However, such measures involve exorbitant investment and a high degree of technology. It has been experienced that lack of timely and adequate maintenance has resulted in spectacular failure of measure undertaken and the resultant erosion is more serious than before the treatment. The exclusive use of vegetative measures for control of major land slide and severe gully erosion often results in failure. However, when vegetative measures are combined with engineering measures, i.e. bio-engineering, the result can be effective stabilization of the area from mass movement and gully cutting, and dramatic reduction of surface erosion, at relatively low cost and high sustainability and with added benefit of fodder and fuel wood production for local people.

To achieve Soil and Moisture Conservation Works a provision of Rs. 599.70 lakh is made in the plan |

6. Strengthening of 3 JFMCS (Entry point Activities)

It has been seen that when an outside agency goes to do development work of a village, the villagers look at them with suspicion. Since all the work has to be done with public participation, it becomes very necessary to win the trust of the villagers. In such a situation, if at the beginning of the program, by getting information about their main problem, it is very necessary to find a solution using local resources with the help of. Therefore, these works are done according to the need/ need of the rural society. Apart from the watershed development program, these works are those works through which contact with the rural society is made. The responsibility of this work lies with the PIA and it is its responsibility to get the information about the urgent need of the rural society through the Gram Sabha and complete the desired work in the shortest possible time. This work does not benefit any particular person but the residents of the entire catchment area are benefitted and the rural society and PIA. The relations are strong. A provision of 12.79 lakhs is made for Jfmc's.

Need of Watershed Treatment In Forest

Not only is the presence of water in [soils](#) essential to the growth of forests, but improved water yield and quality are becoming increasingly important management objectives on many forested lands. Forests and their associated soils and litter layers are excellent filters as well as sponges, and water that passes through this system is relatively pure. Forest disturbances of various kinds can speed up the movement of water from the system and, in effect, reduce the filtering action. While disturbances are [inevitable](#), in most instances they need not contribute to poor water quality.

In mountainous territory the value of forests for [watershed](#) and erosion protection commonly exceeds their value as sources of [lumber](#) or places of recreation

The guiding principle of management where [erosion](#) threatens is therefore the maintenance of continual cover. Ideally, this is achieved by single-stem harvesting; only one [tree](#) is felled at any one point, and the small gap so created is soon closed by the outward growth of its neighbours.

The progress of water, from the time of precipitation until it is returned to the atmosphere and is again ready to be [precipitated](#), is called the [hydrologic cycle](#). The properties of the soil [plant](#) system provide mechanisms that regulate interception, flow, and storage of water in the cycle. The water that moves downward into the soil, or infiltrates, is the difference between precipitation and the losses due to canopy interception, forest floor interception, and [runoff](#). The amount of water stored in the soil is largely dependent on the physical properties of the soil, its depth, and the amount of water lost due to evaporation from the soil surface and [transpiration](#) from plants (evapotranspiration). Transpiration is the water absorbed by plant roots that is subsequently evaporated from their [leaf](#) surfaces. Deep forest soils have a high water-storage [capacity](#). Unless they are very porous and drain freely, they have a [water table](#) below which the subsoil is saturated. The depth of the water table varies seasonally and is higher during periods of low evapotranspiration. Removal of the forest canopy in wet areas also raises the water table. Most tree roots need air to survive and cannot exploit soil below the water table. The [drainage](#) of land having a high water table usually increases the productivity of the forest.

When incoming precipitation exceeds the soil's water-storage capacity, the excess water flows from the soil and can be measured as streamflow. The water [yield](#) of a forest is a measure of the balance between incoming precipitation and outflow of water as streamflow. The amount of increase in water yield depends on annual precipitation as well as the type and amount of overstory vegetation removed. As forests regrow following [cutting](#), increases in streamflow decline as a result of increased transpirational losses. Streamflow declines are greater in areas that are restocked with conifers than in those restocked with hardwoods. This results from greater transpiration losses during the winter months from coniferous species.

Despite the uncertain balance of water gain and loss, forests offer the most desirable cover for water management strategies. Water yields are gradual, reliable, and uniform, as contrasted to the rapid flows of short [duration](#) characteristic of sparsely vegetated land. Unforested land sheds water swiftly, causing sudden rises in the rivers below. Over a large river system, such as that of the [Mississippi](#), forests are a definite advantage since they lessen the risk of floods. They also provide conditions more

favourable to fishing and navigation than does unforested land. All natural streams contain varying amounts of dissolved and suspended matter, although streams issuing from undisturbed watersheds are ordinarily of high quality. Waters from forested areas are not only low in foreign substances, but they also are relatively high in oxygen and low in temperature. Nonetheless, some deterioration of stream quality can be noted during and immediately after clear-cut harvesting, even under the best [logging](#) conditions. The potential for water-quality [degradation](#) following timber harvest may involve turbidity (suspended solids) as well as increases in temperature and nutrient content. Sediment arising from logging roads is the major water-quality problem related to forest activities in many areas.

REASONS FOR WATERSHED TREATMENT



वर्ष 2025-26 में प्रावधानित भू-जल संरक्षण कार्य
SOIL AND MOISTURE CONSERVATION WORK

माइक्रो वाटर शेड का नाम :- पूर्व सरई वन क्षेत्र	वन परिक्षेत्र का नाम :- पूर्व सरई
	बीट का नाम :- पिडरवाह, देवरी
	कक्ष क्रमांक :- R 303,304,393,394,320,395

क्रमांक	संरचना कोड	चयनित संरचना का नाम	इकाई	प्रस्तावित कमपार्टमेंट में कार्य की कुल मात्रा (घ.मी.)	अक्षांश	देशांश	कक्ष क्रमांक	सर्वे दिनांक	रिमांक
1	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	40	N 24° 06' 20''	E 82° 26' 47''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
2	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	45	N 24° 06' 18''	E 82° 26' 48''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
3	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	45	N 24° 06' 16''	E 82° 26' 49''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
4	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 06' 02''	E 82° 27' 00''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
5	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	30	N 24° 06' 02''	E 82° 26' 59''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
6	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	48	N 24° 06' 11''	E 82° 26' 51''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
7	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	40	N 24° 06' 07''	E 82° 26' 52''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
8	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	25	N 24° 06' 05''	E 82° 26' 55''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
9	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	40	N 24° 06' 01''	E 82° 26' 55''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
10	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	50	N 24° 06' 00''	E 82° 26' 57''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
11	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	30	N 24° 06' 00''	E 82° 27' 03''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
12	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	35	N 24° 00' 09''	E 82° 26' 51''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
13	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	40	N 24° 06' 09''	E 82° 26' 47''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
14	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	35	N 24° 06' 03''	E 82° 26' 59''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
15	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	30	N 24° 06' 14''	E 82° 26' 50''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
16	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	35	N 24° 07' 25''	E 82° 26' 54''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
17	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	40	N 24° 06' 44''	E 82° 26' 48''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
18	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	35	N 24° 06' 44''	E 82° 26' 51''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
19	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	30	N 24° 06' 42''	E 82° 26' 54''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
20	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	32	N 24° 06' 40''	E 82° 26' 58''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
21	PDR/LBS	लूज बोल्डर संरचना	घ.मी.	35	N 24° 06' 17''	E 82° 26' 52''	RF-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
22	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	25	N 24° 04' 58''	E 82° 20' 59''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
23	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	22	N 24° 05' 56''	E 82° 21' 02''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
24	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	25	N 23° 04' 56''	E 82° 21' 03''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
25	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	24	N 24° 04' 55''	E 82° 21' 05''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
26	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	21	N 24° 04' 54''	E 82° 21' 04''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
27	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	23	N 24° 04' 54''	E 82° 21' 06''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
28	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	21	N 24° 04' 54''	E 82° 21' 07''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
29	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 04' 53''	E 82° 21' 08''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
30	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 04' 51''	E 82° 21' 11''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
31	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	22	N 24° 04' 52''	E 82° 21' 12''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
32	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 04' 52''	E 82° 21' 13''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
33	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	23	N 24° 04' 52''	E 82° 20' 54''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
34	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 04' 52''	E 82° 20' 54''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
35	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	23	N 24° 04' 51''	E 82° 20' 55''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
36	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	24	N 24° 04' 49''	E 82° 20' 56''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
37	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 04' 49''	E 82° 20' 56''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
38	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 04' 48''	E 82° 20' 56''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK

क्रमांक	संरचना कोड	चयनित संरचना का नाम	इकाई	प्रस्तावित कमपार्टमेंट में कार्य की कुल मात्रा (घ.मी.)	अक्षांश	देशांश	कक्ष क्रमांक	सर्वे दिनांक	रिमार्क
39	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	21	N 24° 04' 55''	E 82° 20' 52''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
40	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	19	N 24° 04' 56''	E 82° 20' 51''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
41	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	19	N 24° 04' 57''	E 82° 20' 51''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
42	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	28	N 24° 04' 58''	E 82° 20' 50''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
43	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 04' 59''	E 82° 20' 50''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
44	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 04' 57''	E 82° 21' 03''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
45	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	32	N 24° 04' 57''	E 82° 21' 04''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
46	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 04' 58''	E 82° 21' 05''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
47	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	22	N 24° 04' 58''	E 82° 21' 06''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
48	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	23	N 24° 05' 43''	E 82° 20' 02''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
49	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 05' 43''	E 82° 19' 57''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
50	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 06' 35''	E 82° 21' 02''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
51	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	22	N 24° 06' 36''	E 82° 21' 01''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
52	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	21	N 24° 06' 37''	E 82° 20' 60''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
53	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 06' 38''	E 82° 20' 59''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
54	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	28	N 24° 05' 00''	E 82° 20' 49''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
55	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	26	N 24° 05' 02''	E 82° 20' 48''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
56	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	26	N 24° 05' 04''	E 82° 20' 47''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
57	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	55	N 24° 05' 05''	E 82° 20' 46''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
58	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	26	N 24° 05' 03''	E 82° 20' 48''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
59	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	18	N 24° 05' 03''	E 82° 20' 49''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
60	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	N 24° 05' 03''	E 82° 20' 50''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
61	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	25	N 24° 05' 02''	E 82° 20' 52''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
62	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	18	N 24° 05' 01''	E 82° 20' 54''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
63	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	35	N 24° 05' 01''	E 82° 20' 55''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
64	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	30	N 24° 05' 00''	E 82° 20' 56''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
65	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	40	N 24° 04' 18''	E 82° 20' 22''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
66	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	40	N 24° 04' 21''	E 82° 20' 28''	RF-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
67	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	35	N 24° 05' 44''	E 82° 19' 58''	RF-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
68	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	50	N 24° 05' 42''	E 82° 19' 48''	RF-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
69	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	50	N 24° 05' 22''	E 82° 19' 42''	RF-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
70	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	50	N 24° 05' 28''	E 82° 19' 40''	RF-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
71	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	56	N 24° 05' 23''	E 82° 20' 25''	RF-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
72	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	44	N 24° 05' 20''	E 82° 20' 24''	RF-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
73	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	60	N 24° 05' 20''	E 82° 20' 22''	RF-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
74	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	80	N 24° 05' 18''	E 82° 20' 20''	RF-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
75	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	80	N 24° 05' 18''	E 82° 20' 16''	RF-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
76	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	33	N 24° 06' 40''	E 82° 20' 52''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
77	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	38	N 24° 06' 42''	E 82° 20' 51''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
78	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	45	N 24° 06' 44''	E 82° 20' 49''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
79	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	50	N 24° 06' 46''	E 82° 20' 47''	RF-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
80	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	48	N 24° 06' 21''	E 82° 22' 21''	RF-320	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK

वर्ष 2025-26 में प्रावधानित भू-जल संरक्षण कार्य
SOIL AND MOISTURE CONSERVATION WORK

माइक्रो वाटर शेड का नाम :- पूर्व सरई वन क्षेत्र	वन परिक्षेत्र का नाम :- पूर्व सरई
	बीट का नाम :- पिडरवाह, देवरी
	कक्ष क्रमांक :- R 303,304,393,394,320,395

क्रमांक	संरचना कोड	चयनित संरचना का नाम	इकाई	संख्या	संरचना की माप			अक्षांश	देशांश	लोकल बेंच मार्क	सर्वे दिनांक	टिप्पणी
					लम्बाई	चौड़ाई	ऊंचाई					
1	PDR/1/TL	तालाब संरचना	नग	1	110	80		N 24° 07'18"	E 82° 27' 48"	R-303	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
2	PDR/2/TL	तालाब संरचना	नग	1	90	70		N 24° 06'02"	E 82° 27' 02"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
3	PDR/3/TL	तालाब संरचना	नग	1	80	60		N 24° 06'27"	E 82° 27' 16"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
4	PDR/4/TL	तालाब संरचना	नग	1	120	80		N 24° 06'20"	E 82° 20' 48"	R-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
5	DEO/1/TL	तालाब संरचना	नग	1	100	60		N 24° 06'22"	E 82° 20' 37"	R-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
6	DEO/2/TL	तालाब संरचना	नग	1	100	60		N 24° 04'53"	E 82° 20' 02"	R-395	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
7	DEO/3/TL	तालाब संरचना	नग	1	120	80		N 24° 04'48"	E 82° 19' 59"	R-394	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
1	PDR/01/PT	परकोलेशन टैंक	घ.मी.	1	40	25	3.4	N 24° 06'05"	E 82° 26' 48"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
2	PDR/02/PT	परकोलेशन टैंक	घ.मी.	1	40	25	3.5	N 24° 06'02"	E 82° 26' 57"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
3	PDR/03/PT	परकोलेशन टैंक	घ.मी.	1	30	30	3.4	N 24° 06'20"	E 82° 26' 46"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
4	PDR/04/PT	परकोलेशन टैंक	घ.मी.	1	35	25	3.4	N 24° 06'06"	E 82° 26' 55"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
5	PDR/05/PT	परकोलेशन टैंक	घ.मी.	1	30	25	3.4	N 24° 06'13"	E 82° 26' 50"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
6	PDR/06/PT	परकोलेशन टैंक	घ.मी.	1	30	25	3.5	N 24° 07'15"	E 82° 27' 17"	R-303	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
7	PDR/07/PT	परकोलेशन टैंक	घ.मी.	1	35	25	3.4	N 24° 07'19"	E 82° 26' 58"	R-303	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
8	PDR/08/PT	परकोलेशन टैंक	घ.मी.	1	35	22	3.4	N 23° 07'27"	E 82° 26' 55"	R-303	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
9	PDR/09/PT	परकोलेशन टैंक	घ.मी.	1	30	25	3.4	N 24° 07'22"	E 82° 26' 52"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
10	PDR/10/PT	परकोलेशन टैंक	घ.मी.	1	30	25	3.4	N 24° 06'43"	E 82° 26' 52"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
11	PDR/11/PT	परकोलेशन टैंक	घ.मी.	1	30	25	3.4	N 24° 06'45"	E 82° 26' 47"	R-304	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
12	DEO/01/PT	परकोलेशन टैंक	घ.मी.	1	60.00	20.00	3.40	N 24° 06'09"	E 82° 22'47"	R-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
13	DEO/02/PT	परकोलेशन टैंक	घ.मी.	1	60.00	20.00	3.40	N 24° 06'57"	E 82° 21'02"	R-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
14	DEO/03/PT	परकोलेशन टैंक	घ.मी.	1	60.00	20.00	3.40	N 24° 06'49"	E 82° 20'46"	R-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
15	DEO/04/PT	परकोलेशन टैंक	घ.मी.	1	55.00	20.00	3.40	N 24° 05'48"	E 82° 19'59"	R-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
16	DEO/05/PT	परकोलेशन टैंक	घ.मी.	1	65.00	20.00	3.20	N 24° 06'15"	E 82° 20'54"	R-393	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
17	DEO/06/PT	परकोलेशन टैंक	घ.मी.	1	60.00	20.00	3.40	N 24° 05'16"	E 82° 21'14"	R-320	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
18	DEO/07/PT	परकोलेशन टैंक	घ.मी.	1	60.00	20.00	3.40	N 24° 04'51"	E 82° 21'23"	R-321	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
19	DEO/08/PT	परकोलेशन टैंक	घ.मी.	1	60.00	20.00	3.50	N 24° 04'29"	E 82° 21'41"	R-320	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
20	DEO/09/PT	परकोलेशन टैंक	घ.मी.	1	60.00	20.00	3.40	N 24° 04'59"	E 82° 22'11"	R-320	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
21	DEO/10/PT	परकोलेशन टैंक	घ.मी.	1	65.00	20.00	3.50	N 24° 05'05"	E 82° 22'14"	R-320	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK
22	DEO/11/PT	परकोलेशन टैंक	घ.मी.	1	60.00	20.00	3.50	N 24° 05'06"	E 82° 22'08"	R-320	1/2/2025	SOIL AND MOISTURE CONSERVATION WORK

लूज बोल्टर संरक्षण का विस्तृत प्राककलन

क्रमांक	कार्य का नाम		मात्रा	प्रस्तावित कमपार्टमेंट मे कार्य की कुल मात्रा (घ.मी.)	दर (प्रति मानव दिवस)	कुल मानव दिवस	राशि	रिमार्क
	संरचना कोड	कार्य का नाम						
1	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	जॉब दर
2	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	45	393	48	17685	जॉब दर
3	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	45	393	48	17685	जॉब दर
4	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
5	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	30	393	32	11790	जॉब दर
6	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	48	393	51	18864	जॉब दर
7	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	जॉब दर
8	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	25	393	26	9825	जॉब दर
9	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	जॉब दर
10	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	50	393	53	19650	जॉब दर
11	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	30	393	32	11790	जॉब दर
12	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	जॉब दर
13	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	जॉब दर
14	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	जॉब दर
15	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	30	393	32	11790	जॉब दर
16	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	जॉब दर
17	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	जॉब दर
18	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	जॉब दर
19	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	30	393	32	11790	जॉब दर
20	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	32	393	34	12576	जॉब दर
21	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	जॉब दर
22	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	25	393	26	9825	जॉब दर
23	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	22	393	23	8646	जॉब दर
24	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	25	393	26	9825	जॉब दर
25	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	24	393	25	9432	जॉब दर
26	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	21	393	22	8253	जॉब दर
27	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	23	393	24	9039	जॉब दर
28	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	21	393	22	8253	जॉब दर
29	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
30	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
31	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	22	393	23	8646	जॉब दर
32	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
33	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	23	393	24	9039	जॉब दर
34	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
35	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	23	393	24	9039	जॉब दर
36	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	24	393	25	9432	जॉब दर
37	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
38	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
39	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	21	393	22	8253	जॉब दर
40	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	19	393	20	7467	जॉब दर
41	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	19	393	20	7467	जॉब दर
42	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	28	393	30	11004	जॉब दर
43	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
44	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
45	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	32	393	34	12576	जॉब दर
46	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
47	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	22	393	23	8646	जॉब दर
48	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	23	393	24	9039	जॉब दर
49	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
50	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
51	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	22	393	23	8646	जॉब दर
52	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	21	393	22	8253	जॉब दर
53	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	जॉब दर
54	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	28	393	30	11004	जॉब दर
55	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	26	393	28	10218	जॉब दर
56	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	26	393	28	10218	जॉब दर

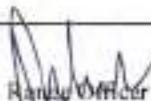
क्रमांक	कार्य का नाम		मात्रा	प्रस्तावित कमपाईमेंट मे	दर (प्रति मानव दिवस)	कुल मानव दिवस	राशि	रिमाक
57	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	55	393	58	21615	जॉब दर
58	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	26	393	28	10218	जॉब दर
59	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	18	393	19	7074	जॉब दर
60	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	20	393	21	7860	जॉब दर
61	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	25	393	26	9825	जॉब दर
62	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	18	393	19	7074	जॉब दर
63	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	35	393	37	13755	जॉब दर
64	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	30	393	32	11790	जॉब दर
65	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	40	393	42	15720	जॉब दर
66	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	40	393	42	15720	जॉब दर
67	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	35	393	37	13755	जॉब दर
68	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	50	393	53	19650	जॉब दर
69	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	50	393	53	19650	जॉब दर
70	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	50	393	53	19650	जॉब दर
71	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	56	393	59	22008	जॉब दर
72	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	44	393	47	17292	जॉब दर
73	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	60	393	64	23580	जॉब दर
74	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	80	393	85	31440	जॉब दर
75	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	80	393	85	31440	जॉब दर
76	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	33	393	35	12969	जॉब दर
77	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	38	393	40	14934	जॉब दर
78	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	45	393	48	17685	जॉब दर
79	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	50	393	53	19650	जॉब दर
80	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	48	393	51	18864	जॉब दर
Total :-							1008438	

ESTIMATE
NAME OF WORK - CONSTRUCTION OF TALAB
RF-303 PDR/01/TL

G.P.S.-N 24° 07'18.00'' E 82° 27' 48.00''

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	120.00	90.00	0	10800.00	Sqm	4.14	44712.00
2	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock	1	110.00	2.50	1.50	412.50	Cum.	216.00	89100.00
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8.1 412.50	Cum	193.10	79654.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km.					Qty. as per item No.2.8.1 412.50	Cum	187.70	77426.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8.1 412.50	Cum	76.70	31639.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8.1 412.50	Cum	163.30	67361.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil	1	110.00	80.00	2.50	22000.00	Cum	147.00	3234000.00
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of Boulder toe & pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					396.00	M ³	404.20	160063.00
9	R.E.S. S.O.R. 1902(j)	Transportation of Boulder toe & pitching Stones Frome Quarry Lead 5 km.					396.00	M ³	187.70	74329.00

10	R.E.S. S.O.R. Item No 2310 (a)	Construction of Boulder toe in earthen embankments including laying and hand packing, dressing, wedging and finishing over surface with.								
		Boulder toe	1	110.00	$\frac{1.56+1.16}{2}$	1.00	149.60			
		Boulder toe	1	110.00	$\frac{1.20+0.60}{2}$	0.90	89.10			
							238.70	M ³	667.30	159284.51
11	R.E.S. S.O.R. Item No 1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.								
		U/S	1	110.00	4.00	-	440.00	M ²	239.20	105248.00
		D/S	1	110.00	2.50	-	275.00	M ²	239.20	65780.00
							157.30	Cum		
12	P.W.D. Item No 281	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock (Waste weir)	1	25.00	1.50	1.00	37.50	Cum.	216.00	8100.00
14		Other Expenditure								83200.00
									Total Rs.	4275896.51
15		Made provision for detail drawing and estimate supervision 1% total construction of project								42798.97
16		Labour Welfare 1%								42798.97
									Grand Total	4365494.44
									Sav Rs.	4365494
17		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.


Range Officer
Range East sarai


Sub Divisional Officer
Sub Division Waidhan


Divisional Forest Officer
Division Singrauli (M.P.)

ESTIMATE
NAME OF WORK - CONSTRUCTION OF TALAB
RF-304 PDR/02/TL

G.P.S.-N 24° 06'02.00'' E 82° 27' 02.00''

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	120.00	90.00	0	10800.00	Sqm	4.14	44712.00
2	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock	1	90.00	2.50	1.50	337.50	Cum.	216.00	72900.00
3	R.E.S. S.O.R. 1801	Collection of puddle earth including stacking at quarry.					Qty. as per item No.2.8.1 337.50	Cum	193.10	65171.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km.					Qty. as per item No.2.8.1 337.50	Cum	187.70	63349.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8.1 337.50	Cum	76.70	25886.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8.1 337.50	Cum	163.30	55114.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil	1	90.00	70.00	2.50	15750.00	Cum	147.00	2315250.00
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of Boulder toe & pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					324.00	M ³	404.20	130961.00
9	R.E.S. S.O.R. 1902(j)	Transportation of Boulder toe & pitching Stones Frome Quarry Lead 5 km.					324.00	M ³	187.70	60815.00

10	E.E.S E.C.D Item No. 2164 30	Construction of Boulder to a surface contaminated including boring and hand packing dressing wedging and finishing over surface with							
		Boulder to	1	40.00	1,200.00	1.00	172.00		
		Boulder to	1	40.00	1,200.00	1.00	75.00		
							247.00	sq	1,902.00
11	E.E.S E.C.D Item No. 1274	Clear work by stone picked up boulder packing or picking at boulder with individual size of 22cm depth and maximum size 0.318							
		1.0	1	40.00	4.00		240.00	sq	961.20
		2.0	1	40.00	2.00		224.00	sq	1,080.00
							464.00	1.00	
12	E.E.S Item No. 1.1	Earth work in excavation by mechanical means (Hydraulic Excavator) manual means in foundation trenches or drains not exceeding 1.7 m in width or 10 m in plan including dressing of sides and ramming of bottom. lift up to 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed within a load of 50 m. (This extra lift is payable if work is done by mechanical means)							
		Ordinary rock (Waste rock)	1	25.00	2.00	2.00	27.00	1.00	2,100.00
14		Other Expenditure							8,200.00
								Total Rs.	11,971.20
15		Make provision for detail drawing and extensive supervision 1% total construction of project							1,207.14
16		Labour Welfare 1%							1,207.14
								Grand Total	12,996.28
								Say Rs.	12,996.28
17		Note -							E.E.S rates are applied to these items only which are not available in P.W.D.


Range Officer
Range East Sarai


Sub Divisional Officer
Sub Division Waddwan


Divisional Forest Officer
(M.P.) Division Sargauli

ESTIMATE
NAME OF WORK - CONSTRUCTION OF TALAB
RF-304 PDR/03/TL

G.P.S.-N 24° 06'27.00'' E 82° 27' 16.00''

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	100.00	90.00	0	9000.00	Sqm	4.14	37260.00
2	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock	1	80.00	2.50	1.50	300.00	Cum.	216.00	64800.00
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8.1 300.00	Cum	193.10	57930.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km.					Qty. as per item No.2.8.1 300.00	Cum	187.70	56310.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8.1 300.00	Cum	76.70	23010.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8.1 300.00	Cum	163.30	48990.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil	1	80.00	60.00	2.50	12000.00	Cum	147.00	1764000.00
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of Boulder toe & pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					288.00	M ³	404.20	116410.00
9	R.E.S. S.O.R. 1902(j)	Transportation of Boulder toe & pitching Stones Frome Quarry Lead 5 km.					288.00	M ³	187.70	54058.00

10	R E S S O R Item No 2310 (a)	Construction of Boulder toe in earthen embankments including laying and hand packing, dressing, wedging and finishing over surface with								
		Boulder toe	1	80.00	$\frac{1.56+1.16}{2}$	1.00	108.80			
		Boulder toe	1	80.00	$\frac{1.20+0.60}{2}$	0.90	64.80			
							173.60	M ³	667.30	115843.28
11	R E S S O R Item No 1274	22cm thick dry stone picked up boulder pitching i.e. picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.								
		U/S	1	80.00	4.00	-	320.00	M ²	239.20	76544.00
		D/S	1	80.00	2.50	-	200.00	M ²	239.20	47840.00
							114.40	Cum		
12	P W D Item No 281	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m. including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock (Waste weir)	1	25.00	1.50	1.00	37.50	Cum	216.00	8100.00
14		Other Expenditure								83200.00
									Total Rs.	2554295.28
15		Made provision for detail drawing and estimate supervision 1% total construction of project								25542.95
16		Labour Welfare 1%								25542.95
									Grand Total	2605381.19
									Say Rs.	2605381
17		Note -								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.

Range Officer
Range East sarai

Sub Divisional Officer
Sub Division Waidhan

Divisional Forest Officer
(M.P) Division Singrauli

ESTIMATE
NAME OF WORK - CONSTRUCTION OF TALAB
RF-303 PDR/04/TL

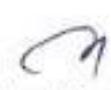
G.P.S.-N 24° 06'20.00'' E 82° 20'48.00''

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	120.00	90.00	0	10800.00	Sqm	4.14	44712.00
2	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock	1	120.00	2.50	1.50	450.00	Cum.	216.00	97200.00
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8.1 450.00	Cum	193.10	86895.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km.					Qty. as per item No.2.8.1 450.00	Cum	187.70	84465.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8.1 450.00	Cum	76.70	34515.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8.1 450.00	Cum	163.30	73485.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil	1	120.00	80.00	2.50	24000.00	Cum	147.00	3528000.00
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of Boulder toe & pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					432.00	M ³	404.20	174614.00
9	R.E.S. S.O.R. 1902(j)	Transportation of Boulder toe & pitching Stones Frome Quarry Lead 5 km.					432.00	M ³	187.70	81086.00

10	R.E.S. S.O.R. Item No 2310 (a)	Construction of Boulder toe in earthen embankments including laying and hand packing, dressing, wedging and finishing over surface with							
		Boulder toe	1	120.00	$\frac{1.56+1.16}{2}$	1.00	163.20		
		Boulder toe	1	120.00	$\frac{1.20+0.60}{2}$	0.90	97.20		
							260.40	M ³	667.30 173764.92
11	R.E.S. S.O.R. Item No 1274	22cm thick dry stone picked up boulder pitching i.e picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.							
		U/S	1	120.00	4.00	-	480.00	M ²	239.20 114816.00
		D/S	1	120.00	2.50	-	300.00	M ²	239.20 71760.00
							171.60	Cum	
12	P.W.D. Item No 231	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and running of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m (No extra lift is payable if work is done by mechanical means)							
		Ordinary rock (Waste weir)	1	25.00	1.50	1.00	37.50	Cum.	216.00 8100.00
14		Other Expenditure.							83200.00
									Total Rs. 4656612.92
15		Made provision for detail drawing and estimate supervision 1% total construction of project							46566.13
16		Labour Welfare 1%							46566.13
									Grand Total 4749745.18
									Say Rs. 4749745
17		Note -	R.E.S. rates are applied to those items only which are not available in P.W.D. sor.						


Range Officer
Range East sarai


Sub Divisional Officer
Sub Division Waidhan


Divisional Forest Officer
(.M.P)Division Singrauli

ESTIMATE
NAME OF WORK - CONSTRUCTION OF TALAB
RF-393 DEO/01/TL

G.P.S.-N 24° 06'22.00'' E 82° 20'37.00''

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	110.00	90.00	0	9900.00	Sqm	4.14	40986.00
2	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock	1	100.00	2.50	1.50	375.00	Cum.	216.00	81000.00
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8.1 375.00	Cum	193.10	72413.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km.					Qty. as per item No.2.8.1 375.00	Cum	187.70	70388.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8.1 375.00	Cum	76.70	28763.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8.1 375.00	Cum	163.30	61238.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil	1	100.00	60.00	2.50	15000.00	Cum	147.00	2205000.00
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of Boulder toe & pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					360.00	M ³	404.20	145512.00
9	R.E.S. S.O.R. 1902(j)	Transportation of Boulder toe & pitching Stones Frome Quarry Lead 5 km.					360.00	M ³	187.70	67572.00

10	R.E.S S.O.R Item No.2310 (a)	Construction of Boulder toe in earthen embankments including laying and hand packing, dressing, wedging and finishing over surface with							
		Boulder toe	1	100.00	$\frac{1.56+1.16}{2}$	1.00	136.00		
		Boulder toe	1	100.00	$\frac{1.20+0.60}{2}$	0.90	41.00		
							217.00	M ³	667.30
11	R.E.S S.O.R Item No.1274	22cm thick dry stone picked up boulder pitching i.e. picking of boulder with individual size of 22cm depth. And Minimum Size 0.014							
		U/S	1	100.00	4.00	-	400.00	M ²	239.20
		D/S	1	100.00	2.50	-	250.00	M ²	239.20
							143.00	Cum	
12	P.W.D Item No 281	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)							
		Ordinary rock (Waste weir)	1	25.00	1.50	1.00	37.50	Cum	216.00
14		Other Expenditure							83200.00
								Total Rs.	3164456.10
15		Made provision for detail drawing and estimate supervision 1% total construction of project							31644.56
16		Labour Welfare 1%							31644.56
								Grand Total	3227745.22
								Say Rs.	3227745
17		Note :-							R.E.S. rates are applied to those items only which are not available in P.W.D. sor.

Range Officer
Range East sarai

Sub Divisional Officer
Sub Division Waidhan

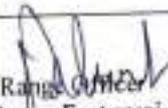
Divisional Forest Officer
(.M.P)Division Singrauli

ESTIMATE
NAME OF WORK - CONSTRUCTION OF TALAB
RF-395 DEO/02/TL

G.P.S.-N 24° 04'53.00'' E 82° 20'02.00''

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	110.00	90.00	0	9900.00	Sqm	4.14	40986.00
2	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock	1	100.00	2.50	1.50	375.00	Cum.	216.00	81000.00
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8.1 375.00	Cum	193.10	72413.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km.					Qty. as per item No.2.8.1 375.00	Cum	187.70	70388.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8.1 375.00	Cum	76.70	28763.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8.1 375.00	Cum	163.30	61238.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil	1	100.00	60.00	2.50	15000.00	Cum	147.00	2205000.00
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of Boulder toe & pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					360.00	M ³	404.20	145512.00
9	R.E.S. S.O.R. 1902(j)	Transportation of Boulder toe & pitching Stones Frome Quarry Lead 5 km.					360.00	M ³	187.70	67572.00

10	R.E.S. S.O.R. Item No.2310 (a)	Construction of Boulder toe in earthen embankments- including laying and hand packing, dressing, wedging and finishing over surface with.							
		Boulder toe	1	100.00	$\frac{1.56+1.10}{2}$	1.00	136.00		
		Boulder toe	1	100.00	$\frac{1.20+0.60}{2}$	0.90	81.00		
							217.00	M ³	667.30
11	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i.e. picking of boulder with individual size of 22cm depth And Minimum Size 0.014.							
		U/S	1	100.00	4.00	-	400.00	M ²	239.20
		D/S	1	100.00	2.50	-	250.00	M ²	239.20
							143.00	Cum	
12	P.W.D. Item No 2.1.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)							
		Ordinary rock (Waste weir)	1	25.00	1.50	1.00	37.50	Cum.	216.00
									8100.00
14		Other Expenditure						Total Rs.	3164456.10
15		Made provision for detail drawing and estimate supervision 1% total construction of project							31644.56
16		Labour Welfare 1%							31644.56
								Grand Total	3227745.22
								Say Rs.	3227745
17		Note:-							R.E.S. rates are applied to those items only which are not available in P.W.D. sor.


Range Officer
Range East sarai


Sub Divisional Officer
Sub Division Waidhan


Divisional Forest Officer
(.M.P)Division Singrauli

ESTIMATE
NAME OF WORK - CONSTRUCTION OF TALAB
RF-394 DEO/03/TL

G.P.S.-N 24° 04'48.00'' E 82° 16'59.00''

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	130.00	90.00	0	11700.00	Sqm	4.14	48438.00
2	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock	1	120.00	2.50	1.50	450.00	Cum.	216.00	97200.00
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8.1 450.00	Cum	193.10	86895.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km.					Qty. as per item No.2.8.1 450.00	Cum	187.70	84465.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8.1 450.00	Cum	76.70	34515.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8.1 450.00	Cum	163.30	73485.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil	1	120.00	80.00	2.50	24000.00	Cum	147.00	3528000.00
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of Boulder toe & pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					432.00	M ³	404.20	174614.00
9	R.E.S. S.O.R. 1902(j)	Transportation of Boulder toe & pitching Stones Frome Quarry Lead 5 km.					432.00	M ³	187.70	81086.00

10	R.E.S. S.O.R. Item No 2310 (a)	Construction of Boulder toe in earthen embankments including laying and hand packing, dressing, wedging and finishing over surface with.								
		Boulder toe	1	120.00	$\frac{1.56+1.16}{2}$	1.00	163.20			
		Boulder toe	1	120.00	$\frac{1.20+0.60}{2}$	0.90	97.20			
							260.40	M ³	667.30	173764.92
11	R.E.S. S.O.R. Item No 1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Maximum Size 0.014.								
		U/S*	1	120.00	4.00	-	480.00	M ²	239.20	114816.00
		D/S	1	120.00	2.50	-	300.00	M ²	239.20	71760.00
							171.60	Cum		
12	P.W.D. Item No 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock (Waste weir)	1	25.00	1.50	1.00	37.50	Cum.	216.00	8100.00
14		Other Expenditure.								83200.00
									Total Rs	4660338.92
15		Made provision for detail drawing and estimate supervision 1% total construction of project								46603.39
16		Labour Welfare 1%								46603.39
									Grand Total	4753545.70
									Say Rs.	4753546
17		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. ser.


Range Officer
Range East sarai


Sub Divisional Officer
Sub Division Waidhan


Divisional Forest Officer
(.M.P)Division Singrauli

परकोलेशन टैंक- 01 का विस्तृत प्राक्कलन (PDR/01/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	40.00	2.50	2.00	200.00	Cum.	131.00	26200.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	200.00	Cum	193.10	38620.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	200.00	Cum	187.70	37540.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	200.00	Cum	76.70	15340.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	200.00	Cum	163.30	32660.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	40.00	25.00	3.40	3400.00	Cum	129.00	438600.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					39.60	M ³	404.20	16006.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					39.60	M ³	187.70	7433.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	40.00	2.50	-	100.00	M ²	239.20	23920.00	
		D/S	1	40.00	2.00	-	80.00	M ²	239.20	19136.00	
							39.60	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	23.00	1.00	1.00	23.00	Cum.	198.10	4556.00	
12		Other Expenditure.								169.00	
									Total Rs.	668460.00	
									Say Rs.	668460.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 02 का विस्तृत प्राक्कलन (PDR/02/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	40.00	2.50	2.00	200.00	Cum.	131.00	26200.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	200.00	Cum	193.10	38620.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	200.00	Cum	187.70	37540.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	200.00	Cum	76.70	15340.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	200.00	Cum	163.30	32660.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	40.00	25.00	3.50	3500.00	Cum	129.00	451500.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					39.60	M ³	404.20	16006.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					39.60	M ³	187.70	7433.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	40.00	2.50	-	100.00	M ²	239.20	23920.00	
		D/S	1	40.00	2.00	-	80.00	M ²	239.20	19136.00	
							39.60	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	23.00	1.00	1.00	23.00	Cum.	198.10	4556.00	
12		Other Expenditure.								169.00	
								Total Rs.		681360.00	
								Say Rs.		681360.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 03 का विस्तृत प्राक्कलन (PDR/03/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	30.00	2.50	2.00	150.00	Cum.	131.00	19650.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	150.00	Cum	193.10	28965.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	150.00	Cum	187.70	28155.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	150.00	Cum	76.70	11505.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	150.00	Cum	163.30	24495.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	30.00	30.00	3.40	3060.00	Cum	129.00	394740.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					29.70	M ³	404.20	12005.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					29.70	M ³	187.70	5575.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	30.00	2.50	-	75.00	M ²	239.20	17940.00	
		D/S	1	30.00	2.00	-	60.00	M ²	239.20	14352.00	
							29.70	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	23.00	1.00	1.00	23.00	Cum.	198.10	4556.00	
12		Other Expenditure.								169.00	
								Total Rs.		570387.00	
								Say Rs.		570387.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 04 का विस्तृत प्राक्कलन (PDR/04/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	35.00	2.50	2.00	175.00	Cum.	131.00	22925.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	175.00	Cum	193.10	33793.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	175.00	Cum	187.70	32848.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	175.00	Cum	76.70	13423.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	175.00	Cum	163.30	28578.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	35.00	25.00	3.40	2975.00	Cum	129.00	383775.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					34.65	M ³	404.20	14006.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					34.65	M ³	187.70	6504.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	35.00	2.50	-	87.50	M ²	239.20	20930.00	
		D/S	1	35.00	2.00	-	70.00	M ²	239.20	16744.00	
							34.65	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	23.00	1.00	1.00	23.00	Cum.	198.10	4556.00	
12		Other Expenditure.								169.00	
								Total Rs.		586531.00	
								Say Rs.		586531.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 05 का विस्तृत प्राक्कलन (PDR/05/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	30.00	2.50	2.00	150.00	Cum.	131.00	19650.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	150.00	Cum	193.10	28965.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	150.00	Cum	187.70	28155.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	150.00	Cum	76.70	11505.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	150.00	Cum	163.30	24495.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	30.00	25.00	3.40	2550.00	Cum	129.00	328950.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					29.70	M ³	404.20	12005.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					29.70	M ³	187.70	5575.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	30.00	2.50	-	75.00	M ²	239.20	17940.00	
		D/S	1	30.00	2.00	-	60.00	M ²	239.20	14352.00	
							29.70	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	22.00	1.00	1.00	22.00	Cum.	198.10	4358.00	
12		Other Expenditure.								169.00	
								Total Rs.		504399.00	
								Say Rs.		504399.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 06 का विस्तृत प्राक्कलन (PDR/06/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock	1	30.00	2.50	2.00	150.00	Cum.	131.00	19650.00
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	150.00	Cum	193.10 28965.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	150.00	Cum	187.70 28155.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	150.00	Cum	76.70 11505.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	150.00	Cum	163.30 24495.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	30.00	25.00	3.40	2550.00	Cum	129.00	328950.00
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					29.70	M ³	404.20	12005.00
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					29.70	M ³	187.70	5575.00
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.								
		U/S	1	30.00	2.50	-	75.00	M ²	239.20	17940.00
		D/S	1	30.00	2.00	-	60.00	M ²	239.20	14352.00
							29.70	Cum		
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock (Waste weir)	1	22.00	1.00	1.00	22.00	Cum.	198.10	4358.00
12		Other Expenditure.								169.00
								Total Rs.		504399.00
								Say Rs.		504399.00
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.

परकोलेशन टैंक- 07 का विस्तृत प्राक्कलन (PDR/07/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount		
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00		
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock	1	35.00	2.50	2.00	175.00	Cum.	131.00	22925.00		
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8		175.00	Cum	193.10	33793.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8		175.00	Cum	187.70	32848.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8		175.00	Cum	76.70	13423.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8		175.00	Cum	163.30	28578.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	35.00	25.00	3.40	2975.00	Cum	129.00	383775.00		
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					34.65	M ³	404.20	14006.00		
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					34.65	M ³	187.70	6504.00		
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.										
		U/S	1	35.00	2.50	-	87.50	M ²	239.20	20930.00		
		D/S	1	35.00	2.00	-	70.00	M ²	239.20	16744.00		
							34.65	Cum				
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock (Waste weir)	1	23.00	1.00	1.00	23.00	Cum.	198.10	4556.00		
12		Other Expenditure.								169.00		
								Total Rs.		586531.00		
								Say Rs.		586531.00		
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.		

परकोलेशन टैंक- 08 का विस्तृत प्राक्कलन (PDR/08/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount		
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00		
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock	1	35.00	2.50	2.00	175.00	Cum.	131.00	22925.00		
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8		175.00	Cum	193.10	33793.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8		175.00	Cum	187.70	32848.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8		175.00	Cum	76.70	13423.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8		175.00	Cum	163.30	28578.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	35.00	22.00	3.40	2618.00	Cum	129.00	337722.00		
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					34.65	M ³	404.20	14006.00		
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					34.65	M ³	187.70	6504.00		
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.										
		U/S	1	35.00	2.50	-	87.50	M ²	239.20	20930.00		
		D/S	1	35.00	2.00	-	70.00	M ²	239.20	16744.00		
							34.65	Cum				
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock (Waste weir)	1	23.00	1.00	1.00	23.00	Cum.	198.10	4556.00		
12		Other Expenditure.								169.00		
								Total Rs.		540478.00		
								Say Rs.		540478.00		
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.		

परकोलेशन टैंक- 09 का विस्तृत प्राक्कलन (PDR/09/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount		
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00		
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock	1	35.00	2.50	2.00	175.00	Cum.	131.00	22925.00		
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8		175.00	Cum	193.10	33793.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8		175.00	Cum	187.70	32848.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8		175.00	Cum	76.70	13423.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8		175.00	Cum	163.30	28578.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	35.00	22.00	3.40	2618.00	Cum	129.00	337722.00		
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					34.65	M ³	404.20	14006.00		
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					34.65	M ³	187.70	6504.00		
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.										
		U/S	1	35.00	2.50	-	87.50	M ²	239.20	20930.00		
		D/S	1	35.00	2.00	-	70.00	M ²	239.20	16744.00		
							34.65	Cum				
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock (Waste weir)	1	23.00	1.00	1.00	23.00	Cum.	198.10	4556.00		
12		Other Expenditure.								169.00		
								Total Rs.		540478.00		
								Say Rs.		540478.00		
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.		

परकोलेशन टैंक- 10 का विस्तृत प्राक्कलन (PDR/10/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	30.00	2.50	2.00	150.00	Cum.	131.00	19650.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	150.00	Cum	193.10	28965.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	150.00	Cum	187.70	28155.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	150.00	Cum	76.70	11505.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	150.00	Cum	163.30	24495.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	30.00	25.00	3.40	2550.00	Cum	129.00	328950.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					29.70	M ³	404.20	12005.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					29.70	M ³	187.70	5575.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	30.00	2.50	-	75.00	M ²	239.20	17940.00	
		D/S	1	30.00	2.00	-	60.00	M ²	239.20	14352.00	
							29.70	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	22.00	1.00	1.00	22.00	Cum.	198.10	4358.00	
12		Other Expenditure.								169.00	
								Total Rs.		504399.00	
								Say Rs.		504399.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 11 का विस्तृत प्राक्कलन (PDR/11/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	30.00	2.50	2.00	150.00	Cum.	131.00	19650.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	150.00	Cum	193.10	28965.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	150.00	Cum	187.70	28155.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	150.00	Cum	76.70	11505.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	150.00	Cum	163.30	24495.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	30.00	25.00	3.40	2550.00	Cum	129.00	328950.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					29.70	M ³	404.20	12005.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					29.70	M ³	187.70	5575.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	30.00	2.50	-	75.00	M ²	239.20	17940.00	
		D/S	1	30.00	2.00	-	60.00	M ²	239.20	14352.00	
							29.70	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	22.00	1.00	1.00	22.00	Cum.	198.10	4358.00	
12		Other Expenditure.								169.00	
								Total Rs.		504399.00	
								Say Rs.		504399.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 12 का विस्तृत प्राक्कलन (DEO/12/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	50.00	40.00	0	2000.00	Sqm	4.14	8280.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	30.00	2.50	2.00	150.00	Cum.	131.00	19650.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	150.00	Cum	193.10	28965.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	150.00	Cum	187.70	28155.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	150.00	Cum	76.70	11505.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	150.00	Cum	163.30	24495.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	30.00	25.00	3.40	2550.00	Cum	129.00	328950.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					29.70	M ³	404.20	12005.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					29.70	M ³	187.70	5575.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	30.00	2.50	-	75.00	M ²	239.20	17940.00	
		D/S	1	30.00	2.00	-	60.00	M ²	239.20	14352.00	
							29.70	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	22.00	1.00	1.00	22.00	Cum.	198.10	4358.00	
12		Other Expenditure.								169.00	
								Total Rs.		504399.00	
								Say Rs.		504399.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 13 का विस्तृत प्राक्कलन (DEO/13/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	60.00	2.50	2.00	300.00	Cum.	131.00	39300.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	300.00	Cum	193.10	57930.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	300.00	Cum	187.70	56310.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	300.00	Cum	76.70	23010.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	300.00	Cum	163.30	48990.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	60.00	20.00	3.40	4080.00	Cum	129.00	526320.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					59.40	M ³	404.20	24009.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					59.40	M ³	187.70	11149.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	60.00	2.50	-	150.00	M ²	239.20	35880.00	
		D/S	1	60.00	2.00	-	120.00	M ²	239.20	28704.00	
							59.40	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	22.00	1.00	1.00	22.00	Cum.	198.10	4358.00	
12		Other Expenditure.								169.00	
								Total Rs.		867721.00	
								Say Rs.		867721.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 14 का विस्तृत प्राक्कलन (DEO/14/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	60.00	2.50	2.00	300.00	Cum.	131.00	39300.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	300.00	Cum	193.10	57930.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	300.00	Cum	187.70	56310.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	300.00	Cum	76.70	23010.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	300.00	Cum	163.30	48990.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	60.00	20.00	3.40	4080.00	Cum	129.00	526320.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					59.40	M ³	404.20	24009.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					59.40	M ³	187.70	11149.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	60.00	2.50	-	150.00	M ²	239.20	35880.00	
		D/S	1	60.00	2.00	-	120.00	M ²	239.20	28704.00	
							59.40	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	25.00	1.00	1.00	25.00	Cum.	198.10	4953.00	
12		Other Expenditure.								169.00	
								Total Rs.		868316.00	
								Say Rs.		868316.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 15 का विस्तृत प्राक्कलन (DEO/15/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount		
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00		
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock	1	55.00	2.50	2.00	275.00	Cum.	131.00	36025.00		
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8		275.00	Cum	193.10	53103.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8		275.00	Cum	187.70	51618.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8		275.00	Cum	76.70	21093.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8		275.00	Cum	163.30	44908.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	55.00	20.00	3.40	3740.00	Cum	129.00	482460.00		
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					54.45	M ³	404.20	22009.00		
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					54.45	M ³	187.70	10220.00		
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.										
		U/S	1	55.00	2.50	-	137.50	M ²	239.20	32890.00		
		D/S	1	55.00	2.00	-	110.00	M ²	239.20	26312.00		
							54.45	Cum				
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock (Waste weir)	1	25.00	1.00	1.00	25.00	Cum.	198.10	4953.00		
12		Other Expenditure.								169.00		
								Total Rs.		797352.00		
								Say Rs.		797352.00		
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.		

परकोलेशन टैंक- 16 का विस्तृत प्राक्कलन (DEO/16/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock	1	65.00	2.50	2.00	325.00	Cum.	131.00	42575.00
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8			
							325.00	Cum	193.10	62758.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8			
							325.00	Cum	187.70	61003.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8			
							325.00	Cum	76.70	24928.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8			
							325.00	Cum	163.30	53073.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	65.00	20.00	3.20	4160.00	Cum	129.00	536640.00
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					64.35	M ³	404.20	26010.00
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					64.35	M ³	187.70	12078.00
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.								
		U/S	1	65.00	2.50	-	162.50	M ²	239.20	38870.00
		D/S	1	65.00	2.00	-	130.00	M ²	239.20	31096.00
							64.35	Cum		
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)								
		Ordinary rock (Waste weir)	1	25.00	1.00	1.00	25.00	Cum.	198.10	4953.00
12		Other Expenditure.								169.00
								Total Rs.		905745.00
								Say Rs.		905745.00
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.

परकोलेशन टैंक- 17 का विस्तृत प्राक्कलन (DEO/17/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	60.00	2.50	2.00	300.00	Cum.	131.00	39300.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	300.00	Cum	193.10	57930.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	300.00	Cum	187.70	56310.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	300.00	Cum	76.70	23010.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	300.00	Cum	163.30	48990.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	60.00	20.00	3.40	4080.00	Cum	129.00	526320.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					59.40	M ³	404.20	24009.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					59.40	M ³	187.70	11149.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	60.00	2.50	-	150.00	M ²	239.20	35880.00	
		D/S	1	60.00	2.00	-	120.00	M ²	239.20	28704.00	
							59.40	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	28.00	1.00	1.00	28.00	Cum.	198.10	5547.00	
12		Other Expenditure.								169.00	
								Total Rs.		868910.00	
								Say Rs.		868910.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 18 का विस्तृत प्राक्कलन (DEO/18/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	60.00	2.50	2.00	300.00	Cum.	131.00	39300.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	300.00	Cum	193.10	57930.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	300.00	Cum	187.70	56310.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	300.00	Cum	76.70	23010.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	300.00	Cum	163.30	48990.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	60.00	20.00	3.40	4080.00	Cum	129.00	526320.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					59.40	M ³	404.20	24009.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					59.40	M ³	187.70	11149.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	60.00	2.50	-	150.00	M ²	239.20	35880.00	
		D/S	1	60.00	2.00	-	120.00	M ²	239.20	28704.00	
							59.40	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	28.00	1.00	1.00	28.00	Cum.	198.10	5547.00	
12		Other Expenditure.								169.00	
								Total Rs.		868910.00	
								Say Rs.		868910.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 19 का विस्तृत प्राक्कलन (DEO/19/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	60.00	2.50	2.00	300.00	Cum.	131.00	39300.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	300.00	Cum	193.10	57930.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	300.00	Cum	187.70	56310.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	300.00	Cum	76.70	23010.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	300.00	Cum	163.30	48990.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	60.00	20.00	3.50	4200.00	Cum	129.00	541800.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					59.40	M ³	404.20	24009.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					59.40	M ³	187.70	11149.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	60.00	2.50	-	150.00	M ²	239.20	35880.00	
		D/S	1	60.00	2.00	-	120.00	M ²	239.20	28704.00	
							59.40	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	28.00	1.00	1.00	28.00	Cum.	198.10	5547.00	
12		Other Expenditure.								169.00	
								Total Rs.		884390.00	
								Say Rs.		884390.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 20 का विस्तृत प्राक्कलन (DEO/20/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	60.00	2.50	2.00	300.00	Cum.	131.00	39300.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	300.00	Cum	193.10	57930.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	300.00	Cum	187.70	56310.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	300.00	Cum	76.70	23010.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	300.00	Cum	163.30	48990.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	60.00	20.00	3.40	4080.00	Cum	129.00	526320.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					59.40	M ³	404.20	24009.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					59.40	M ³	187.70	11149.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	60.00	2.50	-	150.00	M ²	239.20	35880.00	
		D/S	1	60.00	2.00	-	120.00	M ²	239.20	28704.00	
							59.40	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	28.00	1.00	1.00	28.00	Cum.	198.10	5547.00	
12		Other Expenditure.								169.00	
								Total Rs.		868910.00	
								Say Rs.		868910.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

परकोलेशन टैंक- 21 का विस्तृत प्राक्कलन (DEO/21/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount		
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00		
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock	1	65.00	2.50	2.00	325.00	Cum.	131.00	42575.00		
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8		325.00	Cum	193.10	62758.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8		325.00	Cum	187.70	61003.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8		325.00	Cum	76.70	24928.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8		325.00	Cum	163.30	53073.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	65.00	20.00	3.50	4550.00	Cum	129.00	586950.00		
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					64.35	M ³	404.20	26010.00		
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					64.35	M ³	187.70	12078.00		
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.										
		U/S	1	65.00	2.50	-	162.50	M ²	239.20	38870.00		
		D/S	1	65.00	2.00	-	130.00	M ²	239.20	31096.00		
							64.35	Cum				
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)										
		Ordinary rock (Waste weir)	1	28.00	1.00	1.00	28.00	Cum.	198.10	5547.00		
12		Other Expenditure.								169.00		
								Total Rs.		956649.00		
								Say Rs.		956649.00		
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.		

परकोलेशन टैंक- 22 का विस्तृत प्राक्कलन (DEO/22/PT)

S.no	SOR Item	Item of Work	No.	L.	B.	H.	Qty.	Unit	Rate	Amount	
1	P.W.D. Item No. 2.2	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1	70.00	40.00	0	2800.00	Sqm	4.14	11592.00	
2	P.W.D. Item No. 2.8	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock	1	60.00	2.50	2.00	300.00	Cum.	131.00	39300.00	
3	R.E.S. S.O.R. 1801	Collection of puddle earth includingh stacking at quarry.					Qty. as per item No.2.8	300.00	Cum	193.10	57930.00
4	R.E.S. S.O.R. 1902 (j)	Puddle Earth Transportation lead up to 5.00 km. R.E.S. S.O.R. Item No. 1902 (j)					Qty. as per item No.2.8	300.00	Cum	187.70	56310.00
5	R.E.S. S.O.R. 401	Puddle filling by Earth. (Only earth)					Qty. as per item No.2.8	300.00	Cum	76.70	23010.00
6	R.E.S. S.O.R. Item No.2306	Puddle filling of good clay (exceeding cost of puddle earth and water) including mixing kneeding by tamping ramming and laying etc.					Qty. as per item No.2.8	300.00	Cum	163.30	48990.00
7	P.W.D. Item No. 2.6	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including dressing of sides and ramming of bottom disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed. (No extra lift is payable if work is done by mechanical means) All kinds of soil.	1	60.00	20.00	3.50	4200.00	Cum	129.00	541800.00	
8	R.E.S. S.O.R. 1813a+ 1818C	Collection of pitching Stones size 20 to 25 cm. and not less then 0.021 cum Other then black trap basalt or granite with stacking item.					59.40	M ³	404.20	24009.00	
9	R.E.S. S.O.R. 1902j	Transportation of pitching Stones Frome Quarry Lead 5 km. R.E.S. S.O.R. Item No.1902j					59.40	M ³	187.70	11149.00	
10	R.E.S. S.O.R. Item No.1274	22cm thick dry stone picked up boulder pitching i/c picking of boulder with individual size of 22cm depth. And Minimum Size 0.014.									
		U/S	1	60.00	2.50	-	150.00	M ²	239.20	35880.00	
		D/S	1	60.00	2.00	-	120.00	M ²	239.20	28704.00	
							59.40	Cum			
11	P.W.D. Item No. 2.8.1	Earth work in excavation by mechanical means (Hydraulic Excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. (No extra lift is payable if work is done by mechanical means)									
		Ordinary rock (Waste weir)	1	28.00	1.00	1.00	28.00	Cum.	198.10	5547.00	
12		Other Expenditure.								169.00	
								Total Rs.		884390.00	
								Say Rs.		884390.00	
13		Note:-								R.E.S. rates are applied to those items only which are not available in P.W.D. sor.	

व्यय संक्षेपिका

क्रमांक	कार्य का कोड	कार्य का नाम	इकाई	प्रस्तावित कमपार्टमेंट में कार्य की कुल मात्रा (घ.मी.)	दर	कुल मा0 दि0	राशि	रिमार्क
1	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	SOIL AND MOISTURE CONSERVATION WORK
2	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	45	393	48	17685	SOIL AND MOISTURE CONSERVATION WORK
3	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	45	393	48	17685	SOIL AND MOISTURE CONSERVATION WORK
4	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
5	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	30	393	32	11790	SOIL AND MOISTURE CONSERVATION WORK
6	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	48	393	51	18864	SOIL AND MOISTURE CONSERVATION WORK
7	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	SOIL AND MOISTURE CONSERVATION WORK
8	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	25	393	26	9825	SOIL AND MOISTURE CONSERVATION WORK
9	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	SOIL AND MOISTURE CONSERVATION WORK
10	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	50	393	53	19650	SOIL AND MOISTURE CONSERVATION WORK
11	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	30	393	32	11790	SOIL AND MOISTURE CONSERVATION WORK
12	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	SOIL AND MOISTURE CONSERVATION WORK
13	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	SOIL AND MOISTURE CONSERVATION WORK
14	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	SOIL AND MOISTURE CONSERVATION WORK
15	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	30	393	32	11790	SOIL AND MOISTURE CONSERVATION WORK
16	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	SOIL AND MOISTURE CONSERVATION WORK
17	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	SOIL AND MOISTURE CONSERVATION WORK
18	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	SOIL AND MOISTURE CONSERVATION WORK
19	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	30	393	32	11790	SOIL AND MOISTURE CONSERVATION WORK
20	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	32	393	34	12576	SOIL AND MOISTURE CONSERVATION WORK
21	PDR/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	SOIL AND MOISTURE CONSERVATION WORK
22	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	25	393	26	9825	SOIL AND MOISTURE CONSERVATION WORK
23	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	22	393	23	8646	SOIL AND MOISTURE CONSERVATION WORK
24	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	25	393	26	9825	SOIL AND MOISTURE CONSERVATION WORK
25	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	24	393	25	9432	SOIL AND MOISTURE CONSERVATION WORK
26	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	21	393	22	8253	SOIL AND MOISTURE CONSERVATION WORK
27	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	23	393	24	9039	SOIL AND MOISTURE CONSERVATION WORK
28	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	21	393	22	8253	SOIL AND MOISTURE CONSERVATION WORK
29	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
30	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
31	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	22	393	23	8646	SOIL AND MOISTURE CONSERVATION WORK
32	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
33	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	23	393	24	9039	SOIL AND MOISTURE CONSERVATION WORK
34	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
35	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	23	393	24	9039	SOIL AND MOISTURE CONSERVATION WORK
36	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	24	393	25	9432	SOIL AND MOISTURE CONSERVATION WORK
37	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK

क्रमांक	कार्य का कोड	कार्य का नाम	इकाई	प्रस्तावित कमपार्टमेंट में कार्य की कुल मात्रा (घ.मी.)	दर	कुल मा0 दि0	राशि	रिमांक
38	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
39	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	21	393	22	8253	SOIL AND MOISTURE CONSERVATION WORK
40	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	19	393	20	7467	SOIL AND MOISTURE CONSERVATION WORK
41	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	19	393	20	7467	SOIL AND MOISTURE CONSERVATION WORK
42	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	28	393	30	11004	SOIL AND MOISTURE CONSERVATION WORK
43	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
44	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
45	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	32	393	34	12576	SOIL AND MOISTURE CONSERVATION WORK
46	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
47	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	22	393	23	8646	SOIL AND MOISTURE CONSERVATION WORK
48	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	23	393	24	9039	SOIL AND MOISTURE CONSERVATION WORK
49	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
50	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
51	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	22	393	23	8646	SOIL AND MOISTURE CONSERVATION WORK
52	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	21	393	22	8253	SOIL AND MOISTURE CONSERVATION WORK
53	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
54	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	28	393	30	11004	SOIL AND MOISTURE CONSERVATION WORK
55	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	26	393	28	10218	SOIL AND MOISTURE CONSERVATION WORK
56	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	26	393	28	10218	SOIL AND MOISTURE CONSERVATION WORK
57	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	55	393	58	21615	SOIL AND MOISTURE CONSERVATION WORK
58	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	26	393	28	10218	SOIL AND MOISTURE CONSERVATION WORK
59	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	18	393	19	7074	SOIL AND MOISTURE CONSERVATION WORK
60	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	20	393	21	7860	SOIL AND MOISTURE CONSERVATION WORK
61	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	25	393	26	9825	SOIL AND MOISTURE CONSERVATION WORK
62	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	18	393	19	7074	SOIL AND MOISTURE CONSERVATION WORK
63	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	SOIL AND MOISTURE CONSERVATION WORK
64	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	30	393	32	11790	SOIL AND MOISTURE CONSERVATION WORK
65	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	SOIL AND MOISTURE CONSERVATION WORK
66	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	40	393	42	15720	SOIL AND MOISTURE CONSERVATION WORK
67	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	35	393	37	13755	SOIL AND MOISTURE CONSERVATION WORK
68	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	50	393	53	19650	SOIL AND MOISTURE CONSERVATION WORK
69	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	50	393	53	19650	SOIL AND MOISTURE CONSERVATION WORK
70	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	50	393	53	19650	SOIL AND MOISTURE CONSERVATION WORK
71	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	56	393	59	22008	SOIL AND MOISTURE CONSERVATION WORK
72	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	44	393	47	17292	SOIL AND MOISTURE CONSERVATION WORK
73	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	60	393	64	23580	SOIL AND MOISTURE CONSERVATION WORK
74	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	80	393	85	31440	SOIL AND MOISTURE CONSERVATION WORK
75	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	80	393	85	31440	SOIL AND MOISTURE CONSERVATION WORK
76	DEO/LBS	लूज बोल्टर संरचना	घ.मी.	33	393	35	12969	SOIL AND MOISTURE CONSERVATION WORK

क्रमांक	कार्य का कोड	कार्य का नाम	इकाई	प्रस्तावित कमपार्टमेंट में कार्य की कुल मात्रा (घ.मी.)				दर	कुल मा0 दि0	राशि	रिमांक
77	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	38				393	40	14934	SOIL AND MOISTURE CONSERVATION WORK
78	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	45				393	48	17685	SOIL AND MOISTURE CONSERVATION WORK
79	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	50				393	53	19650	SOIL AND MOISTURE CONSERVATION WORK
80	DEO/LBS	लूज बोल्डर संरचना	घ.मी.	48				393	51	18864	SOIL AND MOISTURE CONSERVATION WORK
Total									2718	1008438	
क्रमांक	कार्य का कोड	कार्य का नाम	इकाई	संख्या	लम्बाई	चौड़ाई	ऊंचाई	दर	कुल मा0 दि0	राशि	रिमांक
1	PDR/01/PT	परकोलेशन टैंक	घ.मी.	1	40	25	3.4			668460	SOIL AND MOISTURE CONSERVATION WORK
2	PDR/02/PT	परकोलेशन टैंक	घ.मी.	1	40	25	3.5			681360	SOIL AND MOISTURE CONSERVATION WORK
3	PDR/03/PT	परकोलेशन टैंक	घ.मी.	1	30	30	3.4			570387	SOIL AND MOISTURE CONSERVATION WORK
4	PDR/04/PT	परकोलेशन टैंक	घ.मी.	1	35	25	3.4			586531	SOIL AND MOISTURE CONSERVATION WORK
5	PDR/05/PT	परकोलेशन टैंक	घ.मी.	1	30	25	3.4			504399	SOIL AND MOISTURE CONSERVATION WORK
6	PDR/06/PT	परकोलेशन टैंक	घ.मी.	2	30	25	3.5			504399	SOIL AND MOISTURE CONSERVATION WORK
7	PDR/07/PT	परकोलेशन टैंक	घ.मी.	3	35	25	3.4			586531	SOIL AND MOISTURE CONSERVATION WORK
8	PDR/08/PT	परकोलेशन टैंक	घ.मी.	4	35	22	3.4			540478	SOIL AND MOISTURE CONSERVATION WORK
9	PDR/09/PT	परकोलेशन टैंक	घ.मी.	5	30	25	3.4			540478	SOIL AND MOISTURE CONSERVATION WORK
10	PDR/10/PT	परकोलेशन टैंक	घ.मी.	6	30	25	3.4			504399	SOIL AND MOISTURE CONSERVATION WORK
11	PDR/11/PT	परकोलेशन टैंक	घ.मी.	7	30	25	3.4			504399	SOIL AND MOISTURE CONSERVATION WORK
12	DEO/01/PT	परकोलेशन टैंक	घ.मी.	8	60	20	3.4			504399	SOIL AND MOISTURE CONSERVATION WORK
13	DEO/02/PT	परकोलेशन टैंक	घ.मी.	9	60	20	3.4			867721	SOIL AND MOISTURE CONSERVATION WORK
14	DEO/03/PT	परकोलेशन टैंक	घ.मी.	10	60	20	3.4			868316	SOIL AND MOISTURE CONSERVATION WORK
15	DEO/04/PT	परकोलेशन टैंक	घ.मी.	11	55	20	3.4			797352	SOIL AND MOISTURE CONSERVATION WORK
16	DEO/05/PT	परकोलेशन टैंक	घ.मी.	12	65	20	3.2			905745	SOIL AND MOISTURE CONSERVATION WORK
17	DEO/06/PT	परकोलेशन टैंक	घ.मी.	13	60	20	3.4			868910	SOIL AND MOISTURE CONSERVATION WORK
18	DEO/07/PT	परकोलेशन टैंक	घ.मी.	14	60	20	3.4			868910	SOIL AND MOISTURE CONSERVATION WORK
19	DEO/08/PT	परकोलेशन टैंक	घ.मी.	15	60	20	3.5			884390	SOIL AND MOISTURE CONSERVATION WORK
20	DEO/09/PT	परकोलेशन टैंक	घ.मी.	16	60	20	3.4			868910	SOIL AND MOISTURE CONSERVATION WORK
21	DEO/10/PT	परकोलेशन टैंक	घ.मी.	17	65	20	3.5			956649	SOIL AND MOISTURE CONSERVATION WORK
22	DEO/11/PT	परकोलेशन टैंक	घ.मी.	18	60	20	3.5			884390	SOIL AND MOISTURE CONSERVATION WORK
1	PDR/1/TL	तालाब संरचना	नग	1						4365494	SOIL AND MOISTURE CONSERVATION WORK
2	PDR/2/TL	तालाब संरचना	नग	1						3259628	SOIL AND MOISTURE CONSERVATION WORK

क्रमांक	कार्य का कोड	कार्य का नाम	इकाई	प्रस्तावित कमपाईमेंट में कार्य की कुल मात्रा (घ.मी.)	दर	कुल मूल्य रु०	राशि	विवरण
3	PDR/3/TL	हालात संरचना	घग	1			2605381	SOIL AND MOISTURE CONSERVATION WORK.
4	PDR/4/TL	हालात संरचना		1			4749745	SOIL AND MOISTURE CONSERVATION WORK.
5	DEO/1/TL	हालात संरचना	घग	1			3227745	SOIL AND MOISTURE CONSERVATION WORK.
6	DEO/2/TL	हालात संरचना	घग	1			3227745	SOIL AND MOISTURE CONSERVATION WORK.
7	DEO/3/TL	हालात संरचना	घग	1			4753546	SOIL AND MOISTURE CONSERVATION WORK.
योग :-							42665236	
1	बीड लगेवाई, कोटोवाक, घुना, फोटोकॉपी, स्टेशनरी आदि						30000	
2	1 प्रतिशत ताले, दोन ताले प्रतिक्षण, डी.पी.आर. व्यय						426652	
3	1 प्रतिशत वाटरसाइट इंजीनियर का क्रियान्वयन के दौरान तकनीकी सहायता, संरचनाओं का माप एवं व्यय						426652	
4	15 प्रतिशत उपचार योजना के द्वितीय तर्ज का मरम्मत व रखरखाव पर व्यय						6399785	
5	20 प्रतिशत उपचार योजना के तृतीय तर्ज का मरम्मत व रखरखाव पर व्यय						8533047	
कुल योग :-							58481373	

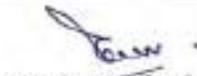

 वन अधिकारी
 वन विभाग पूर्व सरई


 वन वनमण्डल अधिकारी
 वन वनमण्डल बैदग


 वनमण्डलाधिकारी
 वनमण्डल सिंगौली (सामान्य)

Cost Estimate of SOIL AND MOISTURE CONSERVATION WORK for forest area		
No.	Particulars	Amount (Lac.)
1	Part 1	
(a)	Implementation of support Infrastructure Cost	1.50
(b)	Training and extension Programme	0.50
(c)	Microplan	0.80
(d)	Documentation	1.00
(e)	Gender Support	1.00
(f)	Provision for Monitoring and Evaluation	1.00
(g)	Capacity Building	1.20
	Sub-Total(1)	7.00
2	Part 2 (Soil and moisture Conservation works)	
(a)	Loose Boulder Structure(L. B. S.)	10.08
(b)	Talab	261.89
(c)	Percolation Tank	154.67
(d)	Other expenditures(Board,surveying,consultancy)	3.95
	Sub-Total(2)	430.59
3	Part 3 (Maintenance work of Soil and moisture Conservation works)	
(a)	Maintenance work of Soil and moisture Conservation works Second Year 2025-26	63.99
(b)	Maintenance work of Soil and moisture Conservation works Third Year 2026-27	85.33
	Sub-Total(3)	149.32
4	Part 4	
(a)	Strengthening of 3 JFMCS (Entry point Activities, development)-5% of Treatment Cost	12.79
	Grand Total	599.70


 वन परिसर अधिकारी
 वन परिक्षेत्र पूर्व चरई


 उप वनमंडल अधिकारी
 उप वनमंडल बैड़न


 वनमंडलाधिकारी
 वनमंडल सिंगरीली (सामान्य)

Annexure-29



कार्यालय वन मण्डल अधिकारी वन मण्डल सिंगरौली(म0प्र0)

माजन मोड़ जिला पंचायत के बगल में
ईमेल—dfot.sgl@mp.gov.in, फोन—07805-233336 फैक्स—233335

क्र० / तक्र० / 2272

सिंगरौली, दिनांक. 28.03.2025

प्रति,

प्राधिकृत अधिकारी,
बन्धा कोल ब्लॉक,
मेसर्स ई. एम. आई.एल. माईन्स
एण्ड मिनरल रिसोर्सिस लिमिटेड सिंगरौली

विषय:— वन मण्डल सिंगरौली के परिक्षेत्र बैढ़न/पूर्व सरई के वन कक्ष क्रमांक आर.एफ. 389, 390, 291, 292, 293, 391, 392, 296, 319, 320 एवं पी.एफ. 316, 317 के रकवा 781.94 हे० वनभूमि एवं विभिन्न खसरो क रकवा 3.55 हे० राजस्व वनभूमि (कुल रकवा 785.49 हे० वनभूमि) के स्थान पर पुनरीक्षित रकवा 807.917 हे० वनभूमि में बन्धा कोल ब्लॉक ओपन कास्ट कोयला उत्खनन के व्यपवर्तन का — मेसर्स ई. एम. आई.एल. माईन्स एण्ड मिनरल रिसोर्सिस लिमिटेड का ऑनलाईन प्रस्ताव क्रमांक FP/MP/MIN/144129/2021

संदर्भ:— अपर प्रधान मुख्य वन संरक्षक (भू-प्रबंध) म०प्र० भोपाल का प्राप्त आदेश क्रमांक/एफ—1/841/ 2023/10—11/ दिनांक 28.03.2025

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विषयांतर्गत के संबंध में वन मण्डल सिंगरौली अंतर्गत वन परिक्षेत्र बैढ़न के कक्ष क्रमांक आर. 389, 390, वन परिक्षेत्र पूर्व सरई के कक्ष क्रमांक आर. 290, 291, 292, 293, 294, 296, 319, 391, 320 एवं पी. 316, 317 में प्रभावित वनभूमि रकवा 804.367 हे० एवं राजस्व वन भूमि रकवा 3.55 हे० कुल रकवा 807.917 हे० भूमि मेसर्स ई. एम. आई.एल. माईन्स एण्ड मिनरल रिसोर्सिस लिमिटेड द्वारा आवंटित बन्धा कोल ब्लॉक ओपन कास्ट कोयला उत्खनन हेतु वन संरक्षण अधिनियम 1980 के अन्तर्गत ऑनलाईन प्रस्तावित है।

सन्दर्भित पत्र से प्रकरण में भारत सरकार की शर्त अनुसार केचमेंट एरिया ट्रीटमेन्ट प्लान कार्य की तकनीकी स्वीकृति में लागत राशि का विवरण निम्नानुसार है :-

क्र०	मद का नाम	रकवा (हे० में)	कैम्पा मद में जमा की जाने योग्य राशि	कुल योग
1	केचमेंट एरिया ट्रीटमेन्ट प्लान कार्य	785.49	5,99,70,000 /—	5,99,70,000 /—
योग:—			5,99,70,000 /—	5,99,70,000 /—

केचमेंट एरिया ट्रीटमेन्ट प्लान कार्यरकवा 785.49 हे० की राशि रू. 5,99,70,000 /—(रू. पाच करोड़ निन्यानवें लाख सत्तर हजार मात्र) जिसे कैम्पा मद में भारत सरकार की वेबसाईट के माध्यम से जमा कराकर चालान एवं यू.टी.आर. की प्रति इस कार्यालय में प्रस्तुत करें।


वन मण्डल अधिकारी
वन मण्डल सिंगरौली

पृ०क्र० / तक्र० / 2273

सिंगरौली दिनांक. 28.03.2025

प्रतिलिपि:— 1. अपर प्रधान मुख्य वन संरक्षक (भू-प्रबंध), मध्यप्रदेश, भोपाल की ओर सूचनार्थ सम्प्रेषित।
2. वन संरक्षक, रीवा वृत्त रीवा की ओर सूचनार्थ सम्प्रेषित।


वन मण्डल अधिकारी
वन मण्डल सिंगरौली

बंधा कोल माइन परियोजना,
(ई0एम0आई0एल0 माइन्स एण्ड मिनरल रिसोर्सस लिमिटेड)
जिला सिंगरौली (म0प्र0)
के लिए

पुनर्वास/पुनर्व्यवस्थापन नीति
धारा 11 अधिसूचना दिनांक 12/05/2022

**पुनर्वास/पुनर्व्यवस्थापन नीति
(बन्धा कोल माइन परियोजना)**

प्रस्तावना

मध्यप्रदेश राज्य के सिंगरौली जिले की तहसील सरई में स्थित बन्धा कोल ब्लॉक को कोयला मंत्रालय के पत्र क्र. NA-104/5/2020-NA दिनांक 03/03/2021 के द्वारा ई0एम0आई0एल0 माइन्स एण्ड मिनरल रिसोर्सेस लिमिटेड को बन्धा कोल ब्लॉक के लिए सफल बोली दाता के रूप में नियुक्त किया गया है। बन्धा कोल माइन परियोजना हेतु निजी भूमि के अर्जन के लिए भू अर्जन अधिनियम 2013 के प्रावधानों के तहत जारी अधिसूचनाओं का विवरण निम्नानुसार है—

धारा- 4 के अंतर्गत जारी अधिसूचना—दिनांक 14/06/2021

धारा-11 के अंतर्गत जारी अधिसूचना—दिनांक 12/05/2022

सिंगरौली जिले में वित्तीय वर्ष 2022-23 में तहसील सरई के समीप स्थित स्ट्रैटाटेक मिनरल्स रिसोर्सेस प्राईवेट लिमिटेड की धिरीली कोल माइन परियोजना के लिए भू-अधिग्रहण प्रक्रियाधीन है इस परियोजना के लिये वर्ष 2022 में म0प्र0 की आदर्श पुनर्वास नीति 2002 एवं भूमि अर्जन, पुनर्वासन, और पुनर्व्यवस्थापन में उचित प्रतिफल और पारदर्शिता का अधिकार अधिनियम, 2013 में समाविष्ट प्रावधानों के अंतर्गत पुनर्वास एवं पुनर्व्यवस्थापन नीति का अनुमोदन किया जा चुका है। ई0एम0आई0एल0 माइन्स एण्ड मिनरल रिसोर्सेस लिमिटेड का बन्धा कोल ब्लॉक तथा स्ट्रैटाटेक मिनरल्स रिसोर्सेस प्राईवेट लिमिटेड की धिरीली कोल माइन परियोजना तहसील सरई जिला सिंगरौली में स्थित है। स्ट्रैटाटेक मिनरल्स रिसोर्सेस प्राईवेट लिमिटेड धिरीली की पुनर्वास एवं पुनर्व्यवस्थापन नीति का अनुमोदन वित्तीय वर्ष 2022-23 में दिनांक 28.10.2022 को कमिश्नर महोदय रीवा संभाग रीवा के द्वारा भारत सरकार द्वारा जारी मूल्य सूचकांक को आधार मानते हुए किया जा चुका है।

बन्धा कोल माइन, ई0एम0आई0एल0 माइन्स एण्ड मिनरल रिसोर्सेस लिमिटेड परियोजनान्तर्गत तहसील सरई के अंतर्गत परियोजना प्रबंधक द्वारा प्रस्तुत प्रस्ताव अनुसार भूमि अर्जन पुनर्वासन और पुनर्व्यवस्थापन में उचित प्रतिफल और पारदर्शिता का अधिकार अधिनियम 2013 के प्रावधानों के तहत निम्नानुसार ग्रामों की भूमि का अर्जन किया जाना प्रस्तावित है।

क्र.	तहसील	ग्राम का नाम	कुल निजी भूमि का अर्जित रकबा हे. में
1	सरई	बन्धा	511.31
2		पिंडरवाह	119.03
3		तेंदुहा	108.23
4		देवरी	35.67
5		पर्वीर	1.85
कुल योग			776.09

उपरोक्तानुसार बन्धा कोल माइन परियोजना, (ई0एम0आई0एल0 माइन्स एण्ड मिनरल रिसोर्सेस लिमिटेड) हेतु निजी भूमि अर्जन से प्रभावित/विस्थापित परिवारों का पुनर्वासन और पुनर्व्यवस्थापन वित्तीय वर्ष 2022-23 में किया जाना अपेक्षित है।

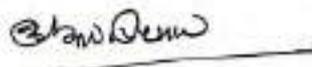
पुनर्वास एवं पुनर्व्यवस्थापन नीति

भाग-1

परिभाषाएँ—

01. (अ) कम्पनी— कम्पनी से तात्पर्य ई0एम0आई0एल0 माइन्स एण्ड मिनरल रिसोर्सेस लिमिटेड, जिला सिंगरौली से है।

(ब) परियोजना— परियोजना से तात्पर्य बन्धा कोल माइन, जिला सिंगरौली से है।




Pooja Bhatia
Project Head
Bandha Coal Mine

02. प्रभावित क्षेत्र- प्रभावित क्षेत्र से तात्पर्य ऐसे गाँव या बस्ती से है जिसमें परियोजना स्थापित करने के लिए निजी, शासकीय एवं वन भूमियों का घयन किया गया हो, चाहे इन निजी भूमियों का अर्जन भू-अर्जन पुनर्वासन और पुनर्व्यवस्थापन में उचित प्रतिकर और पारदर्शिता का अधिकार अधिनियम 2013 के प्रावधानों के तहत किया गया हो या सीधे भूमि स्वामियों से कय किया गया हो या शासन के द्वारा शासकीय भूमि आवंटित/व्यपवर्तित की गई हो। किन्तु यदि कोई भू-भाग परियोजना से छोड़ा जा रहा है तो वह क्षेत्र प्रभावित क्षेत्र नहीं माना जावेगा, जिसे राजस्व अभिलेख नवशा एवं खसरा में चिन्हित किया गया हो।

03. विस्थापित व्यक्ति- कोई व्यक्ति जो प्रभावित क्षेत्र में धारा-11 के अधिसूचना के प्रकाशन की तारीख 12/05/2022 के 03 वर्ष पूर्व से अपने गृहस्थ जीवन के लिए आवश्यक वस्तुओं के साथ निवास करता हो विस्थापित व्यक्ति कहलायेगा। किन्तु यदि कंपनी द्वारा भूमि-स्वामियों से सीधे भूमि कय की गई है तथा उस भूमि का अर्जन नहीं किया गया है तो भूमि की रजिस्ट्री दिनांक को कटआफ दिनांक माना जायेगा तथा उस परिवार के लिए परिवार की परिभाषा इस नीति के कण्डिका 4 (क) के अनुसार मान्य की जावेगी।

04. विस्थापित परिवार-

(क) उपरोक्त (कण्डिका 3 में) परिभाषित व्यक्तियों से बना परिवार, जिसमें पति, पत्नी तथा नाबालिग बच्चे और परिवार के मुखिया पर आश्रित अन्य व्यक्ति विधवा बहन, अविवाहित बहन, अविवाहित पुत्री या वृद्ध माता-पिता शामिल है।

(ख) विस्थापित परिवार के प्रत्येक बालिग पुत्र, अविवाहित पुत्री, अविवाहित बहन एवं भाई जो धारा-11 की दिनांक 12/05/2022 को बालिग (18 वर्ष या अधिक उम्र हो गया है) वह पृथक परिवार के रूप में माना जावेगा।

(ग) परियोजना प्रभावित क्षेत्र के अनाथ नाबालिग बच्चों (जिनके माता-पिता न हों) को पुनर्वास लाभ दिये जाने के लिए एक अलग यूनिट माना जावेगा।

05. भू-विस्थापित परिवार -

ऐसा भूमि स्वामी जिसकी निजी भूमि के अर्जन हेतु अर्वाह पारित किया गया हो या उनकी निजी भूमि परियोजना हेतु क्रय की गई हो उसका परिवार भू-विस्थापित परिवार कहलायेगा।

06. प्रभावित व्यक्ति-

ऐसा व्यक्ति जो अर्जन क्षेत्र में स्थित भूमि पर धारा-11 की अधिसूचना प्रकाशन दिनांक 12/05/2022 से 3 वर्ष पूर्व से भूमि पर खेती कर रहा हो या अन्य उद्यमों द्वारा अपने परिवार का जीवनयापन कर रहा हो और उस ग्राम में अस्थाई/स्थाई रूप से निवास कर रहा हो, परियोजना प्रभावित व्यक्ति माना जावेगा।

07. प्रभावित परिवार-

उपरोक्त (कण्डिका 06) में परिभाषित प्रभावित व्यक्तियों से बना परिवार जिसमें पति, पत्नी, तथा नाबालिग बच्चे और परिवार के मुखिया पर आश्रित अन्य व्यक्ति परित्यक्ता/विधवा बहन/अविवाहित बहन/अविवाहित पुत्री /वृद्ध माता-पिता शामिल है।

08. विस्थापन दिनांक-

प्रत्येक विस्थापित परिवारों को रिहायशी मकान खाली कर अधिग्रहित/आवंटित/व्यपवर्तित भूमि का भौतिक आधिपत्य पूर्ण रूप से कंपनी को सौंपने के दिनांक को विस्थापन दिनांक माना जावेगा।

09. परियोजना के प्रभावितों की श्रेणी-

(क)- ऐसे परिवार जो धारा 11 की अधिसूचना प्रकाशन दिनांक के पूर्व से परियोजना प्रभावित क्षेत्र में लगातार तीन वर्ष से खेती कर रहा हो किन्तु ग्राम में स्थाई या अस्थाई रूप से निवास नहीं कर रहा हो और भू-अर्जन में उसकी पूर्ण या आंशिक भूमि अधिग्रहित कर ली गई हो।

(ख)- ऐसे परिवार जो धारा 11 की अधिसूचना प्रकाशन दिनांक के तीन वर्ष पूर्व से स्वयं के मकान या किराये के मकान में स्थाई रूप से निवास कर कोई लघुउद्योग, व्यापार, या कोई अन्य उद्यम कर अपने परिवार का जीवन यापन कर रहा हो।

(ग)- ऐसा कृषि श्रमिक जो भूमिहीन है, तथा धारा 11 की अधिसूचना प्रकाशन की दिनांक के तीन वर्ष पूर्व से ग्राम में निवास कर खेती से जुड़े हुए कार्य कर अपने परिवार का जीवन यापन कर रहे हो।

(घ)-ऐसे अकृषि श्रमिक जो भूमिहीन हैं, तथा धारा 11 की अधिसूचना प्रकाशन की दिनांक के तीन वर्ष पूर्व से खेती से जुड़े हुए कार्य तो नहीं करते किन्तु उस ग्राम में निवास कर कृषि से जुड़े हुए अन्य कार्य कर अपने परिवार का जीवन यापन करते हैं।

(ङ)- ऐसे परिवार जो धारा 11 की अधिसूचना प्रकाशन की दिनांक के तीन वर्ष पूर्व से ग्राम में अस्थाई रूप से निवास कर कृषि कार्य तो नहीं करते किन्तु बनोपज द्वारा अपने परिवार का जीवन यापन करते हैं।

10. पुनर्वास अनुदान की शर्तें-

कण्डिका 09 में वर्गीकृत प्रभावित परिवार, यदि उक्त में से एक या एक से अधिक श्रेणी में आते हैं तो उन्हें एक ही श्रेणी से प्रभावित मान कर पुनर्वास लाभ दिये जाने हेतु पात्र समझा जावेगा।

11. रिहायशी मकान-

रिहायशी मकान से तात्पर्य ऐसे मकान से है जिसमें कोई परिवार या व्यक्ति स्थायी रूप से भूमि अर्जन की प्रारंभिक अधिसूचना की तिथि 12/05/2022 के तीन वर्ष पूर्व से अपने गृहस्थ जीवन के लिए आवश्यक वस्तुओं के साथ निवास करता हो।

भाग-2

(विस्थापितों/प्रभावितों को दी जाने वाली सुविधाएँ)

1 पुनर्वास अनुदान-

पुनर्वास अनुदान के रूप में प्रत्येक विस्थापित परिवार को (मकान खाली करने के उपरान्त) विस्थापन उपरान्त 300 कार्य दिवस की मध्य प्रदेश शासन द्वारा अवार्ड दिनांक को प्रचलित न्यूनतम कृषि मजदूरी (MAW) की दर से परिगणित राशि का भुगतान एक मुश्त किया जावेगा।

2 (अ-1)-मकान/प्लॉट का आवंटन-परियोजना से विस्थापित परिवार को 90×60 वर्गफुट का प्लॉट पुनर्वास के लिए चयनित ग्राम में दिया जावेगा, जिसमें कम्पनी के द्वारा मकान निर्माण कराया जावेगा (जो प्रधानमंत्री आवास योजना के लिए निर्धारित मानदण्डों से कम नहीं होगा)। यदि विस्थापित परिवार के द्वारा कम्पनी द्वारा निर्मित मकान नहीं लिया जाता तो उसके एवज में मकान निर्माण के लिए 6 लाख रु० कम्पनी द्वारा देय होगा। यदि कोई परिवार पुनर्वास कालोनी में प्लॉट नहीं लेना चाहता है, तो उसे प्लॉट के बदले 2.5 लाख की राशि का भुगतान किया जावेगा। यदि कोई विस्थापित परिवार प्लॉट एवं मकान दोनों नहीं लेना चाहता है तो उसे प्लॉट के बदले 2.5 लाख रु० एवं मकान के बदले 6 लाख रु०, कुल मिलाकर 8.5 लाख रु० देय होगा।

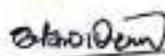
(अ-2)-कैटल शैड/छोटी दुकान हेतु अनुदान- पशुबाड़ा या छोटी दुकान रखने वाले प्रत्येक प्रभावित परिवार को ऐसी छोटी दुकान या पशुबाड़ा के निर्माण के लिए 75000/- रुपये की एक बार वित्तीय सहायता दी जावेगी।

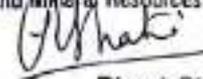
(ब)-प्लॉट का स्वत्वाधिकार- पुनर्वास कालोनी में विस्थापितों को कम्पनी के आवंटन पत्र के आधार पर संबंधित तहसीलदार द्वारा विहित प्रारूप पर पट्टा जारी किया जावेगा। जिस पर विस्थापित व्यक्ति को भूमिस्वामी के समस्त अधिकार प्राप्त होंगे एवं तहसीलदार के द्वारा जारी पट्टे के आधार पर नामान्तरण किया जा सकेगा। पट्टेदार भूमिस्वामी को विधि अनुसार भूमि के अन्तर्ण का अधिकार होगा।

3- विस्थापित परिवार के लिए परिवहन खर्च- प्रत्येक विस्थापित परिवार को भवन सामग्री घरेलू सामान, व परिवार तथा पशुओं के शिपिंग के लिए परिवहन खर्च के रूप में एक मुश्त राशि 60000/- (साठ हजार) रु० की वित्तीय सहायता दी जावेगी।

4- वृद्धावस्था पेंशन :- प्रत्येक विस्थापित परिवार के पुरुष/महिला जो विस्थापन दिनांक को 60 वर्ष की आयु पूर्ण कर चुके हों उन्हें 2000 /- (दो हजार) रु० प्रतिमाह वृद्धावस्था पेंशन दी जावेगी। इस राशि का भुगतान बैंक खाते के माध्यम से विस्थापित को आजीवन अथवा बंधा कोल माइन परियोजना बन्द होने तक किया जावेगा। (यह राशि मध्यप्रदेश शासन द्वारा दी जाने वाली वृद्धावस्था पेंशन राशि से कम नहीं होगी)

5. शिक्षा एवं छात्रवृत्ति :- परियोजना क्षेत्र से विस्थापित होने वाले प्रत्येक परिवार के बच्चों के अध्ययन के लिए खेल के मैदान सहित सर्व सुविधा युक्त विद्यालय नवन का निर्माण कम्पनी द्वारा पुनर्वास ग्राम में कराया जावेगा। इस विद्यालय में कक्षा नर्सरी से 10+2 स्तर तक हिन्दी/अंग्रेजी माध्यम (सीबीएसई बोर्ड एवं डी.पी.एस. स्टैंडर्ड या उसके समकक्ष) से अध्ययन हेतु विद्यालय संचालित किया जावेगा तथा अध्ययन करने वाले बच्चों को निःशुल्क





शिक्षा प्रदान की जायेगी एवं विस्थापित परिवार के अध्ययन करने वाले प्रत्येक बच्चों को पुस्तकें लेखन सामग्री, स्कूल यूनिफार्म की व्यवस्था कम्पनी द्वारा निःशुल्क की जायेगी। विद्यालय में अध्ययन करने वाले विद्यार्थियों को प्रोत्साहित करने के लिए कम्पनी द्वारा प्रतिमाह निम्नानुसार छात्रवृत्ति भी उपलब्ध कराई जायेगी-

कक्षा	बालक	बालिका
नर्सरी से 12 तक	700	900

10वीं एवं 12 वीं कक्षा के प्रथम श्रेणी में उत्तीर्ण छात्र/छात्राओं को 50000 रु० दिया जायेगा।

6 - चिकित्सा सुविधा :- कम्पनी द्वारा पुनर्वास ग्राम/कालोनी में 20 बेड युक्त प्राथमिक स्वास्थ्य केन्द्र की स्थापना की जायेगी जिसमें प्रसूति गृह, पैथोलॉजी लैब, आपातकालीन चिकित्सा कक्ष, बाह्य रोगी चिकित्सा कक्ष, औषधालय भण्डार, अभिलेखागार, कार्यालय एवं प्रतीक्षा गृह, पेय जल आदि का प्रावधान होगा। इस चिकित्सालय में परियोजना से विस्थापित/प्रभावित परिवार के सदस्यों को निःशुल्क चिकित्सा सुविधा उपलब्ध कराई जायेगी।

7- महुआ एवं तेन्दूपत्ता संग्रहण भत्ता- प्रत्येक विस्थापित परिवार जो महुआ या तेन्दूपत्ता का संग्रहण करके अथवा अन्य वनोपज/वनधिकार से अपने परिवार का जीवन यापन करता था, जिसकी पुष्टि वनविभाग द्वारा जारी किये गये समुचित दस्तावेजों से होती है तो उसे न्यूनतम 500 कार्य दिवसों की मजदूरी जो की मध्य प्रदेश शासन द्वारा एचार्ड दिनांक को प्रचलित न्यूनतम कृषि मजदूरी दर से परिगणित राशि जो रु० 100000/- (एक लाख) से कम नहीं होगी, एक मुश्त देय होगी।

8-विस्थापित परिवार को नौकरी, प्रशिक्षण एवं छात्रवृत्ति-

(क.) प्रत्येक विस्थापित परिवार के कम से कम एक सदस्य को परियोजना की आवश्यकता एवं योग्यतानुसार कम्पनी या फिर कम्पनी द्वारा नियुक्त एम.डी.ओ./संविदाकार में, रोजगार/नौकरी उपलब्ध कराने में प्राथमिकता दी जायेगी। अशिक्षित विस्थापितों को परियोजना क्षेत्र में हो रहे निर्माण कार्यों में अकुशल श्रमिक के रूप में रोजगार उपलब्ध कराये जाने में प्राथमिकता दी जायेगी। परियोजना में रोजगार के लिए विस्थापित व्यक्ति अपना नाम परियोजना प्रतिनिधियों के पास दर्ज करावेंगे। इस कार्य में संबंधित ग्राम पंचायत के सरपंच का सहयोग अपेक्षित रहेगा। परियोजना प्रबंधक द्वारा समय-समय पर परियोजना प्रभावित परिवारों के लिए स्विच डेवलपमेंट प्रोग्राम चलाये जावेगे ताकि परियोजना से विस्थापित परिवारों की कुशलता का विकास हो सके एवं उन्हें बेहतर रोजगार के अवसर एवं परियोजना में रोजगार मिल सके।

विस्थापित परिवार के सदस्यों में से परिवार के मुखिया द्वारा नामित व्यक्ति को रोजगार देने में प्राथमिकता दिया जायेगा। तथा इस संबंध में केन्द्र एवं राज्य में प्रचलित अधिनियमों का पालन सुनिश्चित किया जायेगा।

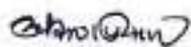
(ख.) रोजगार/नौकरी की व्याख्या-

रोजगार/नौकरी से तात्पर्य है कि कम्पनी के द्वारा किसी विस्थापित परिवार को परियोजना में या फिर कम्पनी द्वारा नियुक्त एम.डी.ओ./संविदाकार के माध्यम से सीधे नियुक्ति आदेश जारी करते हुए नियमित रूप से मासिक वेतन दिया जाकर नियमित कर्मचारियों की भौति नियमित कटौती किया जाता है। यह नौकरी कम्पनी या फिर कम्पनी द्वारा नियुक्ति एम.डी.ओ./संविदाकार के नियमानुसार होगा। एम.डी.ओ द्वारा दी गई नौकरी पर भी कम्पनी द्वारा दी गई नौकरी के समान प्रावधान लागू होंगे तथा यह विस्थापित परिवारों के लिए कम्पनी की नौकरी के रूप में ही मानी जायेगी।

(ग.) यदि कम्पनी द्वारा विस्थापित परिवार के कम से कम एक सदस्य को रोजगार/नौकरी में नहीं लिया जाता है या वह स्वयं रोजगार/नौकरी नहीं करना चाहता है तो उस परिवार के एक सदस्य को स्वरोजगार के लिए रु० 600000/- (छः लाख) अनुदान राशि का एक मुश्त भुगतान या फिर 2800/- (यह राशि कृषक श्रमिकों के सूचकांक के हिसाब से प्रतिवर्ष अप्रैल माह में सूचकांकन किया जायेगा) प्रति माह वार्षिकी (Annuity) 20 वर्ष तक कम्पनी द्वारा दिया जायेगा।

(घ.) बेरोजगारी भत्ता

परियोजना से विस्थापित हो रहे परिवारों में से हर परिवार के कम से कम एक सदस्य को विस्थापन दिनांक से तीन वर्ष के अन्दर यदि कम्पनी द्वारा रोजगार नहीं दिया जाता है तो उस व्यक्ति को तत्कालीन न्यूनतम शासकीय कृषि मजदूरी दर (MAW) के मान से परिगणित राशि जो कि रु० 7200/- प्रति माह से कम नहीं दिया जायेगा। यदि परिवार के मुखिया कोई महिला सदस्य हैं तो उसे भी बेरोजगारी भत्ता प्राप्त करने की पात्रता होगी। यह बेरोजगारी भत्ता विस्थापन दिनांक से 03 वर्ष की अवधि तक देय होगा, बशर्ते उस परिवार को एक वयस्क सदस्य



को उसके द्वारा चयन किया गया नौकरी या स्वरोजगार के लिए अंश (ग) अनुसार कम्पनी द्वारा ₹0.06 लाख एक मुश्त राशि या 2800/- रुपये (यह राशि कृषक श्रमिकों के सूचकांक के हिसाब से प्रतिवर्ष अप्रैल में सूचकांकन किया जायेगा) वार्षिकी प्रति माह (जो कि 20 वर्ष तक देय होगी) प्रदाय किया जाना प्रारंभ नहीं किया गया हो।

(ड) रोजगार व नौकरी के विकल्पों का चयन-

यदि कोई विस्थापित व्यक्ति कंडिका ग. में उल्लिखित रोजगार/नौकरी के एवज में वार्षिकी (Annuity) भुगतान की शुरुआत पश्चात् रोजगार/ नौकरी के एवज में एक मुश्त देय राशि के विकल्प का चयन करता है तो ऐसी स्थिति में कंपनी द्वारा एक मुश्त राशि के भुगतान दिनांक तक पूर्व में भुगतान की गयी वार्षिकी (Annuity) की राशि को घटाकर शेष राशि प्रदान की जायेगी।

(घ) विस्थापितों को प्रशिक्षण- कंपनी के द्वारा अकुशल विस्थापितों के लिए निःशुल्क औद्योगिक एवं कम्प्यूटर प्रशिक्षण मान्यता प्राप्त संस्थाओं से आयोजित कराये जायेंगे तथा प्रशिक्षित विस्थापितों को रोजगार देने में प्राथमिकता दी जायेगी। प्रशिक्षण के दौरान विस्थापित परिवार के प्रशिक्षण प्राप्त कर रहे एक सदस्य को 1000/-प्रतिमाह की छात्रवृत्ति प्रदान की जायेगी।

9. स्वयं का रोजगार - कम्पनी के द्वारा विस्थापितों के अन्दर स्वयं का रोजगार स्थापित करने की क्षमता को विकसित करने के लिए कौशल विकास संबंधी प्रशिक्षण आयोजित कराये जायेंगे।

क. कम्पनी के आवश्यकतानुसार, विस्थापितों के द्वारा क्य किये गये वाहनों को कम्पनी के कार्य में लगाये जाने में प्राथमिकता दी जायेगी।

ख. विस्थापित परिवारों के सदस्यों को सहकारी समितियों के माध्यम से या व्यक्तिगत ठेके के माध्यम से कार्य में लगाया जायेगा।

ग. पुनर्वास ग्राम में निर्मित की गई दुकानों का आवंटन विस्थापित परिवारों को निःशुल्क किया जायेगा। इनके लिए 90 प्रतिशत दुकानों का आरक्षण किया जायेगा। उक्त आरक्षण मुख्यतः किराना, जनरल, स्टोर, दवाई, दूध, ब्रेड, लॉण्ड्री, सब्जी, फल आदि की दुकानों के लिए किया जायेगा। इन्हीं दुकानों में से एक दुकान उचित मूल्य की दुकान के लिए भी सुरक्षित रखी जायेगी। दुकान आवंटन के प्राथमिकता क्रम में आंतरिक आरक्षण व्यवस्था अंतर्गत लॉटरी निकाल कर किया जायेगा। उक्त आवंटन 03 वर्ष तक किया जायेगा। 03 वर्ष बाद पुनः आवंटन की कार्यवाही की जायेगी। आवंटित द्वारा दुकान के दुरुपयोग पर आवंटन निरस्त किया जायेगा। दुकान आवंटन का प्राथमिकता क्रम निम्नानुसार-

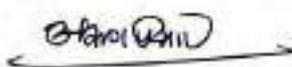
1. महिला द्वारा संचालित स्वसहायता समूह (सभी वर्गों के लिए)।
2. शारीरिक रूप से दिव्यांग व्यक्ति (सभी वर्गों के लिए)।
3. अनुसूचित जनजाति के व्यक्ति।
4. अनुसूचित जाति के व्यक्ति।
5. अन्य पिछड़ा वर्ग के व्यक्ति।
6. महिला मुखिया से चलने वाले परिवार के सदस्य (सभी वर्गों के लिए)।
7. सामान्य वर्ग के व्यक्ति

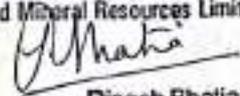
किन्तु यदि उक्त क्रमांक 01 से 07 तक निश्चित की गई श्रेणियों के आवंटन के लिए पात्र कई व्यक्तियों के आवेदन पत्र दुकान प्राप्त करने के लिए लाये जाते हैं तो ऐसी स्थिति में लॉटरी सिस्टम के द्वारा उस वर्ग के व्यक्ति को दुकान प्राप्त करने की पात्रता होगी।

10. श्रमकारी ठेका समितियों का गठन एवं संचालन :- श्रम ठेका समितियों का गठन एवं संचालन परियोजना से विस्थापित परिवार के सदस्यों के द्वारा ही किया जायेगा। परियोजना की आवश्यकतानुसार छोटे निर्माण अथवा अन्य कार्य कराये जाने में इन समितियों के सदस्यों को प्राथमिकता दी जायेगी। इन समितियों का पंजीकरण उपपंजीयक सहकारी समिति के द्वारा कराया जायेगा।

जिला प्रशासन, कंपनी और पंजीकृत श्रम समिति के बीच एक त्रिपक्षीय समझौता किया जायेगा, जिसके आधार पर ऐसी समिति को परियोजना में कार्य दिया जा सकेगा।

11. मुद्रांक एवं पंजीयन शुल्क में छूट- परियोजना से प्रभावित / विस्थापित व्यक्तियों द्वारा विस्थापन होने के पश्चात् यदि कृषि भूमि खरीदी जाती है, तो मध्यप्रदेश की आदर्श पुनर्वास नीति 2002 की कंडिका (29.3) के तहत विस्थापित परिवारों को कृषि भूमि खरीदने के लिए प्रोत्साहित करने हेतु भू-विस्थापित परिवार जो 05 वर्ष के अन्दर परियोजना से विस्थापित ग्राम के आस-पास कृषि भूमि क्रय करता है, तो ऐसे भू-विस्थापित परिवार को



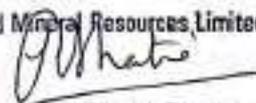
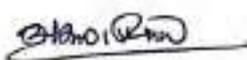


उसकीअधिग्रहित भूमि के मुआवजे के समतुल्य राशि तक की सीमा तक क्रय की गई कृषि भूमि पर लगने वाला मुद्रांक एवं पंजीयन शुल्क कम्पनी द्वारा देय होगा। इस कार्य से परियोजना प्रभावित व्यक्तियों द्वारा प्राप्त किये गये मुआवजे का सही उपयोग किया जा सकेगा और कृषि रोजगार को बढ़ावा भी मिलेगा।

भाग-3

पुनर्वास कालोनी एवं उसमें दी जाने वाली सुविधाएं

1. विस्थापित परिवारों के लिए पुनर्वास ग्राम में निर्मित पुनर्वास कालोनी में निम्नलिखित सुविधाएं और संसाधन उपलब्ध कराया जायेगा।
 1. पुर्नव्यवस्थापित ग्राम के भीतर सड़क और ग्राम से पक्की सड़क मार्ग तक जुड़ी बारहमासी सड़क एवं नालियां-विस्थापितों के आवागमन की सुविधा के लिए पुनर्वास कालोनी को मुख्य मार्ग से जोड़ने के लिए प्रधानमंत्री सड़क योजना के मानको के अन्तर्गत सड़क एवं कालोनी के सड़कों का निर्माण कराया जावेगा। इस के साथ-साथ जल निकासी हेतु सड़क के किनारे-किनारे नाली का भी निर्माण किया जावेगा।
 2. सड़क एवं सड़क विद्युत (स्ट्रीट लाइट) – विस्थापितों के आवागमन की सुविधा के लिए पुनर्वास कालोनी को मुख्य मार्ग से जोड़ने के लिए 09 मी० चौड़ी पक्की सड़क एवं कालोनी के अन्दर 5 मी० चौड़ी पक्की सड़क का निर्माण कराया जावेगा। प्रकाश युक्त आवागमन की सुविधा के लिए आन्तरिक एवं बाह्य सड़कों को विद्युत से प्रकाशित किया जायेगा।
 3. शुद्ध पेयजल की व्यवस्था – विस्थापितों को पीने के लिए पानी की व्यवस्था हेतु पानी का ओवर हेड टैंक बनाकर पाइप लाईन से जल की आपूर्ति की व्यवस्था की जायेगी आवश्यकता होने पर प्रत्येक 20 परिवार के लिए एक हैण्डपम्प लगाये जाने की व्यवस्था की जावेगी।
 4. उचित मूल्य दूकान – विस्थापितों को शासकीय दर पर खाद्यान्न सुलभ कराने हेतु एक उचित मूल्य की दुकान की स्थापना की जावेगी।
 5. आँगनवाड़ी केन्द्र – विस्थापित परिवारों के बच्चों, कुमारी कन्याओं एवं गर्भवती महिलाओं के पोषण आहार की सुलभ व्यवस्था के लिए पुनर्वास कालोनी में आँगनवाड़ी केन्द्र की स्थापना की जावेगी।
 6. हाट बाजार परिसर – विस्थापितों के जीवन से जुड़ी आवश्यक सामग्रियों के प्रदायगी को सुलभ बनाने के लिए पुनर्वास कालोनी परिसर में साप्ताहिक बाजार लगाये जाने के लिए 5000 वर्ग मीटर के परिमाण की भूमि सुरक्षित रखी जावेगी। साप्ताहिक बाजार में लाईट, चबुतरा, टीनशेड, पानी पीने के व्यवस्था एवं पार्किंग की जगह रहेगी।
 7. विद्यालय भवन – कम्पनी द्वारा पुनर्वास ग्राम में विस्थापितों के बच्चों के लिए निःशुल्क शिक्षा हेतु सर्वसुविधायुक्त हायर सेकण्डरी तक स्कूल भवन का निर्माण किया जायेगा। इस विद्यालय में अध्ययन करने वाले विद्यार्थियों को खेलने के लिए खेल के उपकरणों सहित खेल के मैदान की व्यवस्था की जावेगी। स्कूल को हर वर्ष ₹० 50000/- (पचास हजार) का फंड दिया जायेगा। जिसका उपयोग स्कूल समिति के द्वारा पुस्तकालय, खेल सामग्री इत्यादि के लिए किया जायेगा।
 8. सार्वजनिक खेल का मैदान – विस्थापितों के बच्चों को खेलने के लिए पुनर्वास कालोनी में खेल के मैदान के लिए 10,000 वर्गमीटर अर्थात एक हे० के परिमाण में भूमि सुरक्षित रखी जावेगी। खेल के मैदान का विकास एवं सुधार कम्पनी द्वारा किया जायेगा। शौचालय एवं आर०ओ० प्लांट लगाया जायेगा। स्कूल में खेलकूद हेतु 20,000 का फंड प्रतिवर्ष दिया जायेगा।
 9. प्राथमिक स्वास्थ्य केन्द्र का निर्माण – कम्पनी द्वारा पुनर्वास ग्राम में 20 बेड युक्त प्राथमिक स्वास्थ्य केन्द्र की स्थापना की जायेगी जिसमें प्रसूति गृह, पैथोलॉजी लैब, आपातकालीन चिकित्सा कक्ष, बाह्य रोगी चिकित्सा कक्ष,



नस्ती क्र० ...1751

पृष्ठ क्र० ...14

कार्यालय कलेक्टर, जिला-सिंगरौली (म०प्र०)

शाखा का नाम:- भू-अर्जन

प्रभारी अधि०:-श्री राजेश शुक्ला संयुक्त कले.

प्रस्तुतकर्ता:-अशोक कोल सहा. गेड-3

विषय:-सिंगरौली जिले में मेसर्स EMIL को अवैधित बंधा कोल ब्लॉक परियोजना हेतु भूमि-अर्जन, पुनर्वासन एवं पुनर्व्यवस्थापन में उचित प्रतिकर और पारदर्शिता का अधिकार अधिनियम 2013 के प्रावधानों के तहत पुनर्वास एवं पुनर्स्थापन निति को अनुमोदन के संबंध में।

प्रस्तुत,

कृपया अवलोकन करने का कष्ट करें। सिंगरौली जिले में संचालित बंधा कोल ब्लॉक को मध्यप्रदेश शासन कोयला मंत्रालय के पत्र क्र. NA-104/5/2020-NA दिनांक 03/03/2021 के द्वारा ई.एम.आई.एल बंधा कोल ब्लॉक के लिए सफल बोली दाता के रूप में नियुक्त किया गया है। बंधा कोल माइन परियोजना हेतु निजी भूमि के आवेदन के लिए भू-अर्जन अधिनियम 2013 के प्रावधानों के तहत कुल पांच ग्राम बंधा, पिडरवाह, तेंदुहा, देवरी, पचीर के कुल अर्जित निजी भूमि रकवा 776.09 हे. का अर्जन किया गया है जिसमें कि धारा-4 के अंतर्गत जारी अधिसूचना दिनांक 14/06/2021 एवं धारा-11 के अंतर्गत जारी अधिसूचना दिनांक 12/05/2022 को कार्यवाही पूर्ण कर लिया गया है। पुनर्वास / पुनर्व्यवस्थापन स्किम धारा-16 के अंतर्गत तैयार की जाकर लोक सुनवाई दिनांक 21/12/2022 को की गई एवं लोक सुनवाई में किये गये दावों और आक्षेपों के संबंध में दिनांक 27/01/2023 को पुनर्वास समिति की बैठक की गई किन्तु चर्चा पूर्ण न होने के कारण पुनः दिनांक 16/02/2023 को पुनर्वास समिति की बैठक की जाकर समस्त दावों और आक्षेपों के संबंध में चर्चा पूर्ण होने पर बैठक का समापन किया जाकर धारा-17 के अंतर्गत पुनर्वासन / पुनर्व्यवस्थापन स्किम का पुनर्विलोकन किया गया।

उपरोक्तानुसार बंधा कोल ब्लॉक परियोजना हेतु पुनर्वास / पुनर्व्यवस्थापन संबंधी प्रारूप स्कीम लोक सुनवाई पश्चात जिला भू-अर्जन अधिकारी एवं कलेक्टर जिला सिंगरौली व कंपनी प्रबंधन के संयुक्त हस्ताक्षर उपरांत भू-अर्जन अधिनियम 2013 की धारा-17 के तहत प्रस्तावित पुनर्वासन एवं पुनर्व्यवस्थापन का प्रारूप अनुमोदन माननीय आयुक्त महोदय के द्वारा अनुमोदन किया जाना आवश्यक है।

अतः उक्त प्रारूप तैयार कर अनुमोदन हेतु नस्ती अवलोनार्थ एवं आदेशार्थ सादर प्रस्तुत।

कलेक्टर / जिला सिंगरौली
आयुक्त
श्री वेंकट
Collector

प्रशासक एवं अपर कलेक्टर
बंधा कोल ब्लॉक
अनुमोदन करता - अशोक कोल

अशोक कोल
21/1/23

अशोक कोल
21/02/2023
कलेक्टर
जिला-सिंगरौली (म०प्र०)



सत्यमेव जयते

File No.: IA-J-11015/54/2021-IA-II(M)
Government of India
Ministry of Environment, Forest and Climate
Change
IA Division



Dated 19/11/2024



To,

Sh. Dipesh Omprakash Bhatia
EMIL Mines and Mineral Resources Limited
Industry House, 18th Floor, 10 Camac Street, Kolkata, West Bengal, Kolkata, 700017
E-mail: emmrl.registered@adityabirla.com

Subject: **Bandha Opencast Coal Mine of 5 MTPA capacity in mine lease area of 1850.94 ha of M/s EMIL Mines and Mineral Resources Limited (EMMRL) located at Village Bandha, Tenduha, Pidarwah, Deori & Pachaur, Tehsil Sarai, District Singrauli (Madhya Pradesh) – Grant of Environmental Clearance - reg.**

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/MP/CMIN/425307/2023 dated 08/04/2023 and subsequent submission of additional information vide letter dated 01/10/2024 for grant of prior Environmental Clearance (EC) for the project mentioned above under the provisions of the EIA Notification 2006 and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC23A0101MP5971812N
(ii) File No.	IA-J-11015/54/2021-IA-II(M)
(iii) Clearance Type	Fresh EC
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Coal Mining
(vii) Name of Project	Bandha Coal Mine
(ix) Location of Project (District, State)	SINGRAULI, MADHYA PRADESH
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	No

3. The Ministry of Environment, Forest and Climate Change has considered the application. It is noted that the proposal is

for grant of Environmental Clearance to the Bandha Opencast Coal Mine of 5 MTPA capacity in mine lease area of 1850.94 ha of M/s EMIL Mines and Mineral Resources Limited (EMMRL) located at Village Bandha, Tenduha, Pidarwah, Deori & Pachaur, Tehsil Sarai, District Singrauli (Madhya Pradesh). The project/activity is covered under category 'A' of item 1(a) 'Mining of Minerals' the Schedule to the EIA Notification, 2006

4. The proposal was considered by the sectoral Expert Appraisal Committee (EAC) in its 43rd EAC meeting held on 24th April 2023 (Physical mode) and 47th meeting held during 21-22 July, 2023 through Video Conferencing. The proposal was further considered in 16th EAC meeting held during 8-9th October, 2024.

The details of the proposal, as ascertained from the proposal documents and as revealed from the discussions held during the meetings, are given as under:

i. The project area is covered under Survey of India Topo sheet No. 63 L/8 and is bounded by the geographical coordinates ranging from 24004'17" N to 24006'52" N and longitudes 82° 21' 39" E to 82° 24' 57" E. Details of project is as below-

S. No.	Particulars	Details								
a.	Details of the Project	Bandha Coal Mine								
b.	Latitude and Longitude of the project site	24.07166078118939,82.36108712288694 24.11415387931373,82.41594717255734								
c.	Land Requirement (in Ha) of the project or activity	<table border="1"> <thead> <tr> <th>Nature of Land involved</th> <th>Area in Ha</th> </tr> </thead> <tbody> <tr> <td>Non-Forest Land (A)</td> <td>1043.023</td> </tr> <tr> <td>Forest Land (B)</td> <td>807.917</td> </tr> <tr> <td>Total Land (A+B)</td> <td>1850.94</td> </tr> </tbody> </table>	Nature of Land involved	Area in Ha	Non-Forest Land (A)	1043.023	Forest Land (B)	807.917	Total Land (A+B)	1850.94
Nature of Land involved	Area in Ha									
Non-Forest Land (A)	1043.023									
Forest Land (B)	807.917									
Total Land (A+B)	1850.94									
d.	Date of Public Consultation	Public consultation for the project was held on 15.02.2023.								
e.	Rehabilitation and Resettlement (R&R) involvement	YES								
f.	Project Cost	2300000								
g.	EMP Cost	10642								
h.	Employment Details									

Details of Minerals Products & By-products

Name of the Mineral to be mined	Classification of mineral [Major/Minor]	Production capacity in MTPA	Remarks
Coal	Major	5.0	-

ii. Coal linkage of the project is not applicable as the mine is commercial coal mine.

iii. Joint venture cartel has been formed - Not Applicable.

iv. As per PP, project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance.

v. Employment generation- Project will generate employment for about 1406 persons directly. In addition, more than 5000 people will be benefited indirectly.

vi. The project is reported to be beneficial in terms of energy security for the development of country.

vii. Terms of Reference granted by Ministry vide its letter J-11015/54/2021-IA-II (M) dated 13.09.2021.

viii. Total mining lease area as per block allotment is 1850.94 ha. Mining plan & Mine Closure Plan was approved vide letter No. MPMP051/APP0063/2021 dated: 15.02.2022 by Ministry of Coal, Government of India.

ix. Net Geological Reserve reported in the mine lease area is 560.3800 MT with 207.3500 MT Mineable Reserves by opencast mining. Out of total mineable reserve of 207.3500 MT, 197.00 MT are available for extraction. Percent of extraction is 35.1550%. The land usage pattern of the project is as follows:

A. Pre-mining land use details:

S. No.	Type of Land	Existing/Pre- Mining Land Use	Area in Ha (As per original proposal)	Revised Area in Ha
1	Tenancy Land	Agriculture	678.17	655.74
2	Tenancy Land	Township	93.76	93.76
3	Tenancy Land	Grazing	0.00	0.00
4	Tenancy Land	Barren	0.00	0.00
5	Tenancy Land	Water Bodies	2.03	2.03
6	Tenancy Land	Road	0.00	0.00
7	Tenancy Land	Commercial/ Other Use	2.13	2.13
	Sub Total		776.09	753.66
8	Govt. Non-Forest Land	Agriculture	0.00	0.00
9	Govt. Non-Forest Land	Residential	0.00	0.00
10	Govt. Non-Forest Land	Township	0.00	0.00
11	Govt. Non-Forest Land	Grazing	47.19	47.19
12	Govt. Non-Forest Land	Barren	190.08	190.08
13	Govt. Non-Forest Land	Water Bodies	34.78	34.78
14	Govt. Non-Forest Land	Road	7.00	7.00
15	Govt. Non-Forest Land	Railway	0.68	0.68
16	Govt. Non-Forest Land	Other Use	9.63	9.63
	Sub Total		289.36	289.36
17	Forest Land	Revenue	3.55	3.55
18	Forest Land	Reserve	686.05	708.48
19	Forest Land	Protected	95.89	95.89
	Sub Total		785.50	807.92
		Free Hold	0.00	0.00
		Grand Total	1850.94	1850.94

B. Post Mining land use details:

Type	Land use (Proposed)	Land Use (End of Life)	Land Use (Post Closure)					Undisturbed	Total
			Agricultural land	Plan-tation	Water Body	Public/ Company Use	Forest Land (Returned)		
External Dump	350	350		350					350
Safety Zone	15	15					15		15
Settling Pond	15	15			15				15
Road and Infrastructure Area	85	85				85			85
Rationalization Area	25.94	25.94		25.94					25.94
Garland Drains	10	10				10			10
Green Belt	15	15		15					15
UG Entry	10	10				10			10
Undisturbed OR Mining Right For UG	10	10					10		10
Excavation Area	1315								

Backfilled Area		1200	295	905					1200
Excavated Void		115				115			115
Total	1850.94	1850.94	295.00	1295.94	15.00	220.00	0.00	25.00	1850.94

x. Thickness of seams to be worked on: Opencast mining method is proposed for extraction of coal seam VIII and VII. The effective thickness of the coal seam VIII is varying from 1.5-2.5m (Avg.-1.85m) and of seam VII is varies from 11.00-14.00m (Avg.-12.30m). Grade of coal: Grade of seam VIII from G7 to G17 (Avg. G12) and Grade of the Seam VII varies from G7 to G12 (Avg. G9). The overall grade of reserve proposed to be extracted by Opencast is G-10. Stripping ratio: 9.76 m³/t, Average gradient: - Coal Seams gradient of 20-80, Maximum thickness of seams: Seam VIII varies from 1.5 to 2.5 m (Avg. – 1.85 m) and Seam VII varies from 11.00 to 14.00 m (Avg. – 12.30 m).

xi. Method of mining operations envisages by Opencast Mining: Opencast mining is proposed by shovel-dumper combination for OB excavation and Surface Miner for coal winning and loading by FE Loader (3.5 m³) in conjunction with 35 T & 100 T Rear Dumper.

xii. Life of mine is 45 years (Based on the 5 MTPA) and 31 years (Based on the 7.5 MTPA Peak).

xiii. The project has 1 external OB dumps (temporary) in an area of 350 ha with 120 m height and 307.30 Mm³ of OB. 1 internal OB in an area of 1200 ha with 1619.20 mm³ of material is envisaged in the project.

xiv. Total quarry area is 1315 ha out of which backfilling will be done in 1200 ha up to a level of 560 MRL while final mine void will be created in an area of 115 ha with a depth of 230m. Backfilled quarry area of 1200 ha shall be reclaimed with plantation. Final mine void will be converted water body.

xv. Transportation of Coal: Coal Evacuation through road is proposed for first 3 to 4 years till completion of the proposed railway siding: In pit: Initially through Dumpers & through In pit conveyor after few years; Surface to siding: By dumpers and other suitable transportation means; Siding to loading: Initially through Road, later through RLS.

xvi. Reclamation has been Planned in an area of 1255 ha, comprising of Waste Dump and Backfilled Area and 30 ha in the safety zone & green belt. In addition to this, an area of 30 ha, included in the safety zone/rationalization area, has already been proposed for green belt development, as stated above.

xvii. **807.917 ha of forest land** has been reported to be involved in the project. PP has submitted Stage-I Forest Clearance for the forest land/area of 807.917 ha involved in the mine lease area vide letter dated 01/10/2024.

xviii. There are no National Park, eco-sensitive Zones, within 10 km radius.

xix. Wildlife conservation plan for schedule- I species has been submitted – There is no national park or wildlife sanctuary within the study area. However, due to presence of Schedule-1 Fauna, Wildlife Conservation Plan has been submitted to Forest Department for approval on 01.09.2022, Approval is awaited.

xx. The ground water level has been reported to be varying between 7 m bgl to 9.6 m bgl during pre-monsoon and between 4 m bgl to 6.5 m bgl during post-monsoon. Total water requirement for the project is 1200 m³/day.

xxi. NOC for ground water withdrawal has been approved by the Central Ground Water Authority (CGWA) vide NOC no. CGWA/NOC/MIN/ORIG/2022/17071 on 18.11.2022.

xxii. Public hearing for the project of 5.0 MTPA (7.5 MTPA peak capacity) capacity in an area of 1850.94 ha was conducted on 15.02.2023 at Gram Panchayat Bhawan Bandha Village, Tehsil: Sarai, Dist: Singrauli, Madhya Pradesh under the Chairmanship of Shree D.P. Barman, ADM, Singrauli. Major issues raised in the public hearing & appropriate action to address the issues raised in the Public Hearing have already been taken/proposed to be taken are given in the action plan prepared and mentioned in chapter 7 in EIA/EMP report.

xxiii. Consent to Operate for the proposed capacity to be submitted after environment clearance to State Pollution Control

Board - Will be obtained after grant of EC.

xxiv. Bandha Nala and Kanchanmuda Nala passing through the site (Seasonal). No diversion of Bandha and Kanchanmuda Nala has been proposed.

xxv. No court cases, violation cases are pending against the project of the PP.

xxvi. The project does not involve violation of the EIA Notification, 2006 and amendment issued thereunder. No excess production of coal from the sanctioned capacity has been realized since it is a Greenfield project.

xxvii. The project involves 966 PAF. R&R of the PAPs will be done as per prevailing laws.

xxviii. Total cost of the project is Rs. 230000 Lakh. Cost of production is Rs 1400 per tonne, CSR cost will be 2% profit of last three years. R&R cost – 380 Crore. Environment Management Cost is: 10748.2 Lakh, Capital Rs 10642 Lakh; & Recurring Rs. 106.42 Lakh.

xxix. Base line monitoring status:

- Mention the Period/ Season of baseline study carried out - March to May 2021 (Pre-Monsoon) & Oct to Dec 2021 (Post-Monsoon).

- Whether the Laboratory has been accredited by the NABL/ MoEF&CC certification involved in analysis of water, air, noise & soil quality data, also providing its respective lab reports – Yes

5. The Expert Appraisal Committee in its 47th EAC meeting followed by 16th EAC meeting held during 21-22 July, 2023 and **8-9th Oct. 2024**, respectively, through Video Conferencing has recommended the project for grant of Environment Clearance (EC). Based on recommendations of the EAC, Ministry of Environment, Forest and Climate Change hereby accords approval for Environment Clearance(EC) to Bandha Opencast Coal Mine of 5 MTPA capacity in mine lease area of 1850.94 ha of M/s EMIL Mines and Mineral Resources Limited (EMMRL) located at Village Bandha, Tenduha, Pidarwah, Deori & Pachaur, Tehsil Sarai, District Singrauli (Madhya Pradesh), under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto subject to the compliance of the following terms & conditions / specific conditions in addition to the standard environmental conditions (**Annexure-1**).

6. The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report and also that during presentation to the EAC. All the commitments made on the issues raised during public hearing shall also be implemented in letter and spirit.

7. The proponent shall obtain all necessary clearances/approvals that may be required before the start of the project. The Ministry or any other competent authority may stipulate any further condition for environmental protection. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

8. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

9. The coal company/project proponent shall be liable to pay the compensation against the illegal mining, if any, and as raised by the respective State Governments at any point of time, in terms of the orders dated 2nd August, 2017 of Hon'ble Supreme Court in WP (Civil) No.114/2014 in the matter of 'Common Cause Vs Union of India & others.

10. The concerned State Government shall ensure no mining operations to commence till the entire compensation for illegal mining, if any, is paid by the project proponent through their respective Department of Mining & Geology, in strict compliance of the judgment of Hon'ble Supreme Court.

11. This environmental clearance shall not be operational till such time the project proponent complies with the above said judgment of Hon'ble Supreme Court, as applicable, and other statutory requirements.

12. This issue with an approval of the Competent Authority.

Yours faithfully,

(Sundar Ramanathan)
Scientist 'E'/Additonal Director
Tel: 011- 20819378
Email- r.sundar@nic.in

Copy To

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. Deputy Director General of Forests (C), Ministry of Env., Forest and Climate Change, Regional Office, E-5, Kendriya Paryavaran Bhawan, E-5 Arera Colony, Link Road-3, Ravishankar Nagar, Bhopal – 462 016.
3. The Member Secretary, Madhya Pradesh State Pollution Control Board, Paryavaran Parisar, E-5, Arera Colony, Bhopal -462 016.
4. The Member Secretary, Central Ground Water Authority, Ministry of Jal Shakti, Jamnagar House, 18/11, Man Singh Road Area, New Delhi, Delhi 110 001.
5. The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi – 32.
6. The District Collector, Singrauli, Government of (Madhya Pradesh.)
7. Monitoring File/PARIVESH Portal



A. Specific Conditions

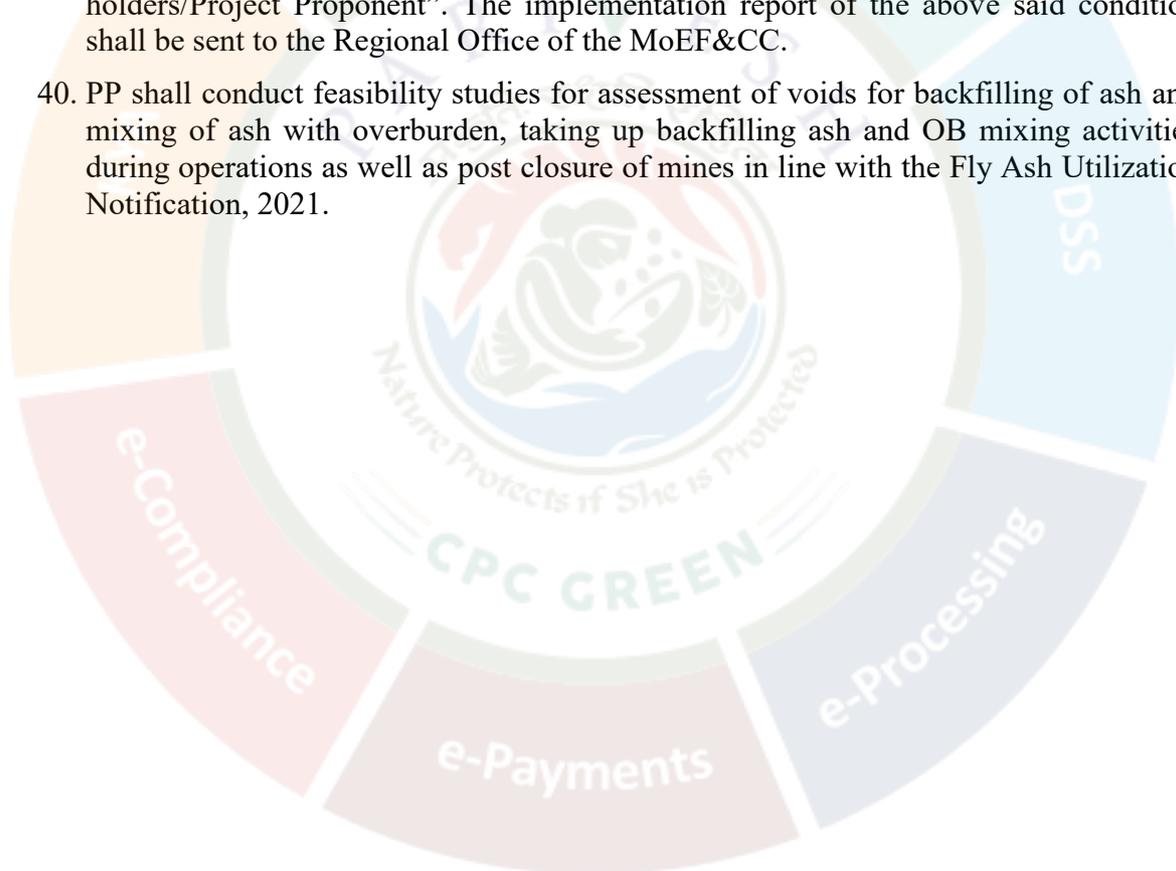
1. PP shall obtain CTE/CTO from State Pollution Control Board for 5.0 MTPA production capacity for open cast operation.
2. PP shall divert the Kanchanmuda Nallah in a manner that its construction for diversion shall be covered in one go without extended period and works plan shall be designed to complete the diversion avoiding Monsoon season (i.e effective working months of non-monsoon season). Embankment height shall be maintained on both side of stream with sufficient free board upto 3 mts from its HFL.
3. PP shall maintain 50 mts width of embankment all along the diverted stream/nallah (Kanchanmuda) and conduct dense plantation with fruit bearing native species by itself.
4. The diversion of Kanchanmuda Nallah shall be monitored by IRO and complete report with the drone video and satellite imagery shall be submitted to IRO, MoEF&CC.
5. PP shall prepare Gabion wall and garland drain all along the OB dumps to catch the surface run-off and sludge coming from dump along with construction of catch drain along the periphery of mine to prevent surface runoff and sedimentation pond to arrest Total Suspended Solids (TSS) particles.
6. PP shall install dedicated inpit conveyor belt with silo loading system till railway siding for transportation of 90% of extracted coal through rail on or before December, 2027 and only 10% shall be transported by road. Accordingly, SPCB should grant the consent to operate.
7. Till the period of setting up mechanized system, PP shall deploy the truck size of upto 40 tonnes (payload) for transportation of coal by dedicated road not passing through village or any sensitive locations. Transportation of coal shall be done in covered trucks only till December, 2027.
8. The mining plan shall be revised/amended at later stage after incorporating the diversion of Nallah in one go with year-wise coal production.
9. PP shall implement activities-wise proposed budget of Rs. 1672 lakhs (as Public Hearing Budget) in time bound manner as in Table 7-2 Chapter 7 on page no. 435 of EIA report, Rs. 10642 Lakhs as a capital cost and Rs 106.42 lakhs for recurring cost (EMP budget) in time bound manner as in Table 10.5, Chapter 10 on page no. 480 of EIA report. The details of annual expenditure shall be part of report submitted to IRO, MoEF&CC. PP needs to include the audited figures against the expenditure and activities to be monitored by through dedicated online monitoring mechanism. The maintenance of all activities shall be covered through recurring cost of Public Hearing, which will be part of CSR budget.
10. PP needs to protect the tribal population as per forest right act, 2006 and under the supervision of District Collector, Singrauli.
11. PP shall provide protection to the agriculture field lying inside the ML area from dust and polluted water.
12. As proposed during the meeting, PP will reduce the carbon footprint after sequestration of CO₂ and the total carbon sequestration potential is approximately 435519 kg/year wherein the carbon sequestration per tree is approximately 32.78 kg/year. PP shall

complete the plantation for total 3277350 no of trees to sequestered estimated potential of carbon i.e. 25938838.14 kg/year. IRO will review the progress of tree plantation w.r.t CO2 sequestration. The process of sequestration of CO2 will include the planting trees, by “Developing carbon capture and storage (CCS) technologies” and implementation of renewable energy. Further, PP shall carry out enough plantation to ensure carbon sequestration lost due to deforestation and other fossil fuel based activities. With all efforts, PP to ensure after 6th year no carbon to be emitted and net zero CO2 shall take place.

13. PP shall complete the dense plantation along mine roads, on OB dumps and non-dump areas with local species particularly of Sal tree/species. PP shall develop 10 ha of Sal nursery in the project area and yearly minimum 10,000 saplings to be distributed among near villagers for afforestation purpose.
14. PP shall complete the plantation in an area of 1310.94 ha @ 2500 plants per ha during the closure of mine. IRO will monitor the coverage of the area through plantation from time to time. The plantation shall also be done in Infrastructure and undisturbed area of 130 Ha proportionately to increase the tree density.
15. PP shall maintain the same distribution of species during the progressive mine closure of the lease area. As well as 295 Ha of reclaimed Land to be converted into agriculture land after completing the mining.
16. PP shall monitor regularly water levels in open dug wells located in village and by establishing Piezometer to ascertain the impact of mining over ground water table and to plan mitigative measures to recharge the area.
17. Main haul road in the mine shall be provided with permanent water sprinklers, and other roads shall be regularly wetted with water tankers fitted with sprinklers. Also PP shall install Mist Cannon Dust Suppression Systems (80-100 mtrs.) at Coal Stock Yard to suppress the dust particles.
18. Garland drains (2mX3m) of adequate size shall be provided at the toe of the benches to arrest discharge and runoff with silt and sediments surging into areas adjoining the periphery of Overburden dump, which will be regularly cleaned before the onset of monsoon every year.
19. Check dams shall be constructed at required locations within drains to arrest eroded materials and settling ponds shall be constructed to treat mine discharge water inside the mine block.
20. As proposed 5 water harvesting pond shall be created separately to recharging the ground water and usage of project affected families.
21. Proper profiling of working benches of pits and dumps shall be done to channelize water in garland drains & sumps.
22. Waste generated from the domestic use shall be treated in STP and the treated water will be utilized in plantation & greenbelt development. Wastewater from the HEMM washing/ workshop will be treated in ETP. After treatment, water will be reused in washing of HEMM, dust suppression and greenbelt development.
23. PP shall limit the activities of mining in its mine lease area only. No OB Dumping and infrastructure activity should be proposed and dumped on forest land. Accordingly revised Mine Plan should be submitted (if required) and submitted to Ministry.

24. PP shall make use of advanced computer simulation techniques for design and execution of blasting operation in the mine. PP shall make use of Electronic Delay Detonators for optimal blasting in coal and OB rock to minimize the environmental impacts of blasting such as ground vibration, fly rocks and excessive dust generation.
25. PP shall explore the possibility & deploy atleast 20% of overall fleet of dumpers/trucks as electrical or CNG/LNG based dumpers/trucks for transportation of coal/OB etc and deploy e-vehicles for workers/staff in/out of the mine.
26. PP shall create a “Public Grievance Redressal and Monitoring System” for resolving any issues related to the pollution of mines and complaint has to resolve as soon as possible not beyond 30 days. In this regard, adequate awareness to be spread among the public to address their grievance to company with simple and easy manner and for which company needs to devise the mechanism. The same shall be reported to IRO within 3 months. A logbook to be maintained by PP on “Public Grievance Redressal and Monitoring System.
27. PP shall ensure distribution of water from the artificial reservoir within and outside Mine lease area in consultation with gram panchayat. The water treatment plant to meet the requirement with the start of production.
28. PP shall install fixed fog cannon (mist spayer) and fixed sprinkler all along the haul road/ CHP, and OB dump till Railway siding is completed. The sufficient number of fog cannons (not less than 10 nos.) with 40 mts jet length shall be installed within 6 months. It should be ensured that air pollution level confirm to the standards prescribed by the MOEFCC/CPCB.
29. PP shall deposit the approved amount as proposed for wildlife conservation plan to the Govt. of **Madhya Pradesh, Forest & Environment Dept.** and further consult with State Biodiversity Authority for its CSR activity.”
30. PP shall construct new multispecialty (50 beds) hospital in the 10 km of the project area within 5 years for local people out of approved budget. The project affected families shall be given free medical facility. This shall be done in consultation of DM of the district.
31. PP shall conduct third party audit of compliance of EC condition at an interval six months and its report shall be submitted to IRO, MoEF&CC.
32. The status of mine closure activities must be included in every six months compliance report submitted to the state pollution control board and IRO.
33. PP to maintain the topped haul road properly to minimized the dust emission. PP to also develop pucca roads by seeking consent from the panchayat with widening of roads especially roads inter linking the villages within the study area of 10 km radius buffer zone.
34. PP to install solar lights along the road used for transportation of minerals to avoid the accidents at night and also seek its maintenance. PP is asked to also identify the rural areas for installation of solar light with its maintenance within the study area of 10 km radius buffer zone within one year.
35. PP to provide bio toilets to the villages located within the study areas within 1 year from the grant of this EC.
36. Persons of nearby villages shall be given training on livelihood and skill development to make them employable with its proper records.

37. PP shall pay to farmers of agricultural land if there is any loss due to pollution found by concerned District Commissioner as per extent rules or norms.
38. PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis. Any non- compliance or infringement should be reported to the concerned authority.
39. Hon'ble Supreme Court in an Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India & Ors vide its judgement dated 8th January, 2020 has directed the Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent". The implementation report of the above said condition shall be sent to the Regional Office of the MoEF&CC.
40. PP shall conduct feasibility studies for assessment of voids for backfilling of ash and mixing of ash with overburden, taking up backfilling ash and OB mixing activities during operations as well as post closure of mines in line with the Fly Ash Utilization Notification, 2021.



B. Standard EC Conditions

I. The grant of Environmental Clearance is further subject to compliance of the Standard EC conditions as under:

(a) Statutory compliance

- (i) The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
- (ii) The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- (iii) The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan/Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report (in case of the presence of schedule-I species in the study area).
- (iv) The project proponent shall obtain Consent to Establish/Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- (v) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.
- (vi) Solid/hazardous waste generated in the mines needs to be addressed in accordance to the Solid Waste Management Rules, 2016/Hazardous & Other Waste Management Rules, 2016.

(b) Air quality monitoring and preservation

- (i) Continuous ambient air quality monitoring stations as prescribed in the statute be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM10, PM2.5, SO2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Online ambient air quality monitoring stations may also be installed in addition to the regular monitoring stations as per the requirement and/or in consultation with the SPCB. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc to be carried out at least once in six months.
- (ii) The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 (E) dated 25th September, 2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.
- (iii) Transportation of coal, to the extent permitted by road, shall be carried out by covered trucks/conveyors. Effective control measures such as regular water/mist sprinkling/rain gun etc shall be carried out in critical areas prone to air pollution (with higher values of PM10/PM2.5) such as haul road, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the

Ambient Air Quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.

- (iv) The transportation of coal shall be carried out as per the provisions and route envisaged in the approved Mining Plan or environment monitoring plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct a 'bypass' road, it should be so constructed so that the impact of sound, dust and accidents could be appropriately mitigated.
- (v) Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
- (vi) Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
- (vii) Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.

(c) Water quality monitoring and preservation

- (i) The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25th September, 2000 and as amended from time to time by the Central Pollution Control Board.
- (ii) The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No.J-20012/1/2006-1A.11 (M) dated 27th May, 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
- (iii) Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.
- (iv) Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
- (v) Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
- (vi) Catch and/or garland drains and siltation ponds in adequate numbers and appropriate size shall be constructed around the mine working, coal heaps & OB dumps to prevent run off of water and flow of sediments directly into the river and water bodies. Further, dump material shall be properly consolidated/ compacted and accumulation of water over dumps shall be avoided by providing adequate channels for flow of silt into the drains. The drains/ ponds so constructed shall be regularly de-silted particularly before onset of

monsoon and maintained properly. Sump capacity should provide adequate retention period to allow proper settling of

- (vii) silt material. The water so collected in the sump shall be utilised for dust suppression and green belt development and other industrial use. Dimension of the retaining wall constructed, if any, at the toe of the OB dumps within the mine to check run-off and siltation should be based on the rainfall data. The plantation of native species to be made between toe of the dump and adjacent field/habitation/water bodies.
- (viii) Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) after due treatment conforming to the specific requirement (standards).
- (ix) Industrial waste water generated from CHP, workshop and other waste water, shall be properly collected and treated so as to conform to the standards prescribed under the standards prescribed under Water Act 1974 and Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time. Adequate ETP /STP needs to be provided.
- (x) The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- (xi) The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations, considering the presence of river/rivulet/pond/lake etc, shall be prepared and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the approved Mining Plan/EIA/EMP report and with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved Mining Plan and as per the permission of DGMS or any other authority as prescribed by the law.
- (xii) The project proponent shall take all precautionary measures to ensure riverine/riparian ecosystem in and around the coal mine up to a distance of 5 km. A riverine/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.

(d) Noise and Vibration monitoring and prevention

- (i) Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.
- (ii) Controlled blasting techniques shall be practiced in order to mitigate ground vibrations, fly rocks, noise and air blast etc., as per the guidelines prescribed by the DGMS.
- (iii) The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

(e) Mining Plan

- (i) Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.
- (ii) Mining shall be carried out as per the approved mining plan (including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
- (iii) No mining shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980.
- (iv) Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.

(f) Land reclamation

- (i) Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change(MOEFCC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
- (ii) The final mine void depth should preferably be as per the approved Mine Closure Plan, and in case it exceeds 40 m, adequate engineering interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land be rendered usable for agricultural/forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation of Mine Closure Plan issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.
- (iii) The entire excavated area, backfilling, external OB dumping (including top soil) and afforestation plan shall be in conformity with the “during mining”/”post mining” land-use pattern, which is an integral part of the approved Mining Plan and the EIA/EMP submitted to this Ministry. Progressive compliance status vis-a-vis the post mining land use pattern shall be submitted to the MOEFCC/RO.
- (iv) Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3rd November, 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, along with fly ash for external dump of overburden, backfilling of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.
- (v) Further, it may be ensured that as per the time schedule specified in mine closure plan it should remain live till the point of utilization. The topsoil shall temporarily be stored at earmarked site(s) only and shall not be kept unutilized. The top soil shall be used for land reclamation and plantation purposes. Active OB dumps shall be stabilised with native grass species to prevent erosion and surface run off. The other overburden dumps shall be vegetated with native flora species. The excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining.

Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change/ Regional Office.

- (vi) The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

(g) Green Belt

- (i) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered/endemic flora/fauna, if any, spotted/reported in the study area. The Action plan in this regard, if any, shall be prepared and implemented in consultation with the State Forest and Wildlife Department.
- (ii) Greenbelt consisting of 3-tier plantation of width not less than 7.5 m shall be developed all along the mine lease area as soon as possible. The green belt comprising a mix of native species (endemic species should be given priority) shall be developed all along the major approach/ coal transportation roads.

(h) Public hearing and Human health issues

- (i) Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & it's RO on six-monthly basis.
- (ii) The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended time to time.
- (iii) Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- (iv) Implementation of the action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.
- (v) The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area.

(i) Corporate Environment Responsibility

- (i) The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any

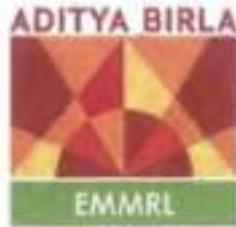
infringements/deviation/violation of the environmental/forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/wildlife norms/conditions and/or shareholders/stake holders.

- (ii) A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- (iii) Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
- (iv) Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

(j) Miscellaneous

- (i) The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- (ii) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- (iii) The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- (iv) The project proponent shall monitor the criteria pollutants level namely; PM10, SO₂, NO_x (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- (v) The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- (vi) The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area.
- (vii) The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

- (viii) The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
- (ix) The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- (x) The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- (xi) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change.
- (xii) Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- (xiii) The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- (xiv) The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- (xv) The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- (xvi) The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.

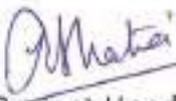


Annexure-32

UNDERTAKING NO LABOUR CAMP SHALL BE ESTABLISHED ON THE FOREST LAND AND THE USER AGENCY SHALL PROVIDE FUELS PREFERABLY ALTERNATE FUELS TO THE LABOURERS AND THE STAFF WORKING AT THE SITE SO AS TO AVOID ANY DAMAGE AND PRESSURE ON THE NEARBY FOREST AREAS

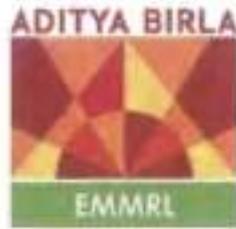
In Compliance to **condition no-xxviii** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake that no labour camp shall be established on the forest land and will provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas.


Project Head



EMMRL Bandha Coal Block

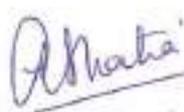


Annexure-33

UNDERTAKING THE BOUNDARY OF THE DIVERTED FOREST LAND, MINING LEASE AND SAFETY ZONE, AS APPLICABLE, SHALL BE DEMARCATED ON GROUND AT THE PROJECT COST, BY ERECTING FOUR FEET HIGH REINFORCED CEMENT CONCRETE PILLARS, EACH INSCRIBED WITH ITS SERIAL NUMBER, DISTANCE FROM PILLAR TO PILLAR AND GPS COORDINATES;THE LAYOUT PLAN OF THE MINING PLAN/ PROPOSAL SHALL NOT BE CHANGED WITHOUT THE PRIOR APPROVAL OF THE CENTRAL GOVERNMENT AND THE FOREST LAND SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN THAT SPECIFIED IN THE PROPOSAL

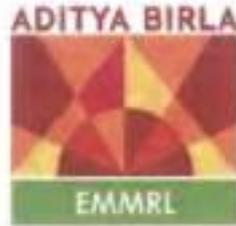
In Compliance to **condition no-xxix** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake that the boundary of the diverted forest land, mining lease and safety zone, as applicable, will be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from pillar to pillar and GPS coordinates. The layout plan of the mining plan/ proposal will not be changed without the prior approval of the Central Government and the forest land will not be used for any purpose other than that specified in the proposal


Project Head



EMMRL Bandha Coal Block

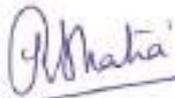


Annexure-34

UNDERTAKING NO DAMAGE TO THE FLORA AND FAUNA OF THE ADJOINING AREA SHALL BE CAUSED

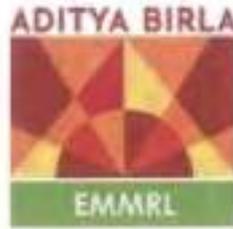
In Compliance to **condition no-xxxi** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake that no damage will be caused to the flora and fauna of the adjoining area during the execution of the project.


Project Head



EMMRL Bandha Coal Block

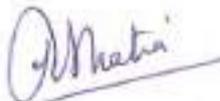


Annexure- 35

UNDERTAKING THE USER AGENCY SHALL COMPLY ALL THE PROVISIONS OF THE ALL ACTS, RULES, REGULATIONS, GUIDELINES, HON'BLE COURT ORDER (S) AND NGT ORDER (S) PERTAINING TO THIS PROJECT, IF ANY, FOR THE TIME BEING IN FORCE, AS APPLICABLE TO PROJECT

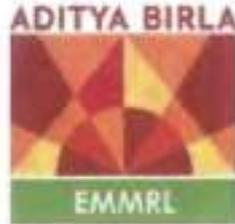
In Compliance to **condition no- xxxii** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to comply with all the provisions of all the Acts, Rules, Regulations, Guidelines, Hon'ble Court Order (s) and NGT Order (s) pertaining to this project, if any, for the time being in force, as applicable to project.


Project Head



EMMRL Bandha Coal Block

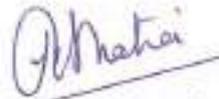


Annexure-36

UNDERTAKING THE USER AGENCY SHALL SUBMIT THE ANNUAL SELF - COMPLIANCE REPORT IN RESPECT OF THE ABOVE STATED CONDITIONS TO THE STATE GOVERNMENT, CONCERNED REGIONAL OFFICE AND TO THIS MINISTRY BY THE END OF MARCH EVERY YEAR REGULARLY

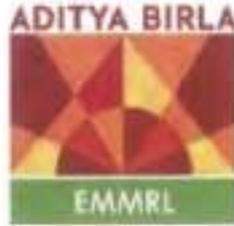
In Compliance to **condition no-xxxiii** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh.

I hereby undertake to submit the annual self-compliance report in respect of the above-stated conditions to the State Government, the concerned Regional Office, and the Ministry by the end of March every year, regularly.


Project Head



EMMRL Bandha Coal Block

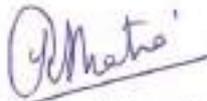


Annexure-37

UNDERTAKING ANY OTHER CONDITION THAT THE MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE MAY STIPULATE FROM TIME TO TIME IN THE INTEREST OF CONSERVATION, PROTECTION AND DEVELOPMENT OF FORESTS & WILDLIFE SHALL BE CARRIED WITH BY THE STATE GOVERNMENT AND USER AGENCY

In Compliance to **condition no-xxxiv** of FC Stage-I clearances granted to Bandha Coal Block vide letter no 8-17/2023-FC dated 01st Oct 2024 allotted to M/s EMIL Mines and Mineral Resources Limited (EMMRL) in Singrauli District of Madhya Pradesh

I hereby undertake to comply with any additional conditions that the Ministry of Environment, Forests & Climate Change may stipulate from time to time in the interest of conservation, protection, and development of forests and wildlife, in coordination with the State Government.


Project Head



EMMRL Bandha Coal Block