



समझौता ज्ञापन

**MEMORANDUM OF UNDERSTANDING**

के मध्य / between

**भारतीय भूवैज्ञानिक सर्वेक्षण/Geological Survey of India**

**खान मंत्रालय/Ministry of Mines**

**भारत सरकार/Government of India**

एवं / and

**केन बेतवा लिंक परियोजना प्राधिकरण/Ken Betwa Link Project Authority**

**भारत सरकार /Government of India**

पर / On

मध्य प्रदेश के छतरपुर और पन्ना जिलों में केन बेतवा लिंक परियोजना के तहत दौधन बांध, ऊपरी स्तर की सुरंग और निचले स्तर की सुरंग एवं केन -बेतवा लिंक नहर के लिए उन्नत निर्माण और निर्माण चरण के काम के लिए भू-तकनीकी जांच

**GEOTECHNICAL INVESTIGATION FOR ADVANCED CONSTRUCTION AND CONSTRUCTION PHASE WORK FOR DAUDHAN DAM, UPPER LEVEL TUNNEL AND LOWER LEVEL TUNNEL AND KEN-BETWA LINK CANAL UNDER KEN BETWA LINK PROJECT IN CHHATARPUR AND PANNA DISTRICTS OF MADHYA PRADESH.**

जुलाई , 2025/July, 2025

भोपाल/ Bhopal

मानव  
15/07/2025

## MEMORANDUM OF UNDERSTANDING

between

**Geological Survey of India (hereinafter referred as GSI), and Ken Betwa Link Project Authority, 2<sup>nd</sup> Floor, (Visvesvaraya Bhawan), 'Kolar Tiraha' Link Road No. 3, Kolar Sinchai Colony, Bhopal, Madhya Pradesh-462042, (hereinafter referred as KBLPA)**

The Memorandum of Understanding herein after referred to as MOU signed on ...15<sup>th</sup> ... day of...July...Year 2025 between Geological Survey of India, Central Region, Seminary Hills, Nagpur – 440006, represented by the Director, Engineering Geology Division, Geological Survey of India, Bhopal - 462016, Government of India (hereafter referred to as GSI), which expression shall include, unless repugnant to the context or contrary to the meaning thereof, its successors or permitted as signees on the **first part**

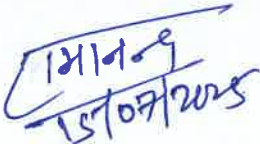
AND

Ken Betwa Link Project Authority, Government of India, represented by the Additional Chief Executive Officer, KBLPA, Bhopal, Madhya Pradesh having its registered office at the office of the Chief Executive Officer, Ken Betwa Link Project Authority 2nd Floor, (Visvesvaraya Bhawan), 'Kolar Tiraha' Link Road No. 3, Kolar Sinchai Colony, Bhopal, Madhya Pradesh-462016 (hereafter referred to as KBLPA), which expression shall include, unless otherwise proved shall include its successors, representatives and assignees on the **other part**.

### **Preamble**

GSI is a premier organization carrying out geological mapping, mineral exploration and multidisciplinary programme in Earth Sciences including sponsored and societal related studies in the field of engineering geology and natural hazard mitigation etc. GSI with over 175 years of geological expertise has evolved into an organisation endowed with cultivated human resource of exceptional calibre, laboratories equipped with world class equipment and activities spreading over air, land and ocean in the specialised fields of geology, geophysics and geochemistry.

Ken Betwa Link Project Authority (KBLPA) is created by Government of India through extraordinary Gazette of Government of India bearing NoCG-DL-E-11022022-233309 date 11.02.2022. The KBLPA functions under Ministry of Jal Shakti, Government of India. KBLPA has been intended for implementation of First River Interlinking Project i.e. linking of Ken and Betwa rivers under National Perspective Plan (NPP).





KBLPA and GSI may at times be referred to individually as "Party" and collectively as the "parties" whereas KBLPA and GSI have agreed upon to co-operate in the areas of geological and geotechnical studies.

The activities to be undertaken in this cooperation, Role of GSI & KBLPA, time frame and other conditions of the collaboration are given below:

### 1. Background

The Ken-Betwa Link Project- Phase-I has been planned as a multipurpose project in the districts of Chhatarpur & Panna of Madhya Pradesh with irrigation as a major benefit and power, drinking water supply and flood moderation as other incidental benefits.

Phase I of the link project envisages the construction of a 96.70 m high and 2002.45 m long composite dam across Ken River at Daudhan with sluice spillways to pass the design flood of 57202 cumecs. The project includes a 221 km long link canal including cross drainage structures, and two tunnels (Lower Level Tunnel of dia. 5.5m, 1.1 km long HRT and Upper Level Tunnel of dia. 8.50 m, 1.929 km for link canal). Two surface Power Houses (PH-I at the toe of Daudhan dam (2 x 30 MW) and the other at the exit of the Lower Level Tunnel (PH-II 3 x 6 MW) have also been envisaged. **However, in the present scheme of the project, the two powerhouses and their tail race channels have been excluded.**

This project will provide irrigation facilities to various districts in Madhya Pradesh and Uttar Pradesh benefitting lakhs of farmer families. The project will also provide drinking water facilities to the people of the region. Along with this, the hydropower projects will contribute more than 100 MW in green energy.

### Project Components

- i. A 96.70 m high, 2002.45 m long composite dam across Ken River at Daudhan village.
- ii. 27 number of low-level sluice spillways for negotiating PMF of 57,202 m<sup>3</sup>/sec.
- iii. 57.4 m high intake structure for the penstock in left flank of NOF concrete portion of dam, 51.14m high Intake -2 for the head race tunnel (Lower Level Tunnel) & 41.17m high Intake-3 for Upper Level Tunnel located in the reservoir of Daudhan dam.
- iv. Headrace tunnel (Lower-Level Tunnel) 5.5m diameter, modified Horse shoe, 1.1 km (approx) with design discharge of 65.19 cumec.
- v. Surge shaft 18 m diameter, 60 m deep, Restricted Orifice Type for Lower Level Tunnel.
- vi. Upper Level Tunnel 8.5m diameter D-Shape, 1.93 km (approx) with design discharge of 159.9 cumec.
- vii. Dam Toe Surface power house (PH-I), and a second surface power house at the exit of the Lower Level Tunnel (PH-II). **(Both the power houses are presently not in the scope of the EPC contract but likely to be included if MoEF&CC reconsiders its decision)**

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viii. Open Tail Race channel of 405m and 255m (approx.) for PH-I & PH-II respectively.

The project is expected to provide annual irrigation of 10.62 lakh ha. (M.P. 8.11 lakh ha, UP 2.5 lakh ha), drinking water supply to about 62 lakhs (MP 41 lakh, UP 21 lakh) people and also generate 103 MW of hydropower and 27 MW solar power generation. A part of the power generation will be utilized to develop micro irrigation in the project.

Geologically, the project site exposes quartzitic sandstone of Kaimur Group of Vindhyan Supergroup. The quartzitic sandstone is fine to medium grained, massive and compact, pinkish to off white interlayered with siltstone. The channel portion is filled with alluvium. At the site rocks of Vindhyan Supergroup unconformably overlies the Bijawar Group. The rock of Upper Bijawar group comprises of comprises tillite (ferruginous conglomerate), basalts, quartzite, phyllite of the upper in the project site. The strata are dipping  $5^{\circ}$ - $10^{\circ}$  towards south. The rocks showing 3 sets of joints (JB: Sub-horizontal/  $5^{\circ}$ - $10^{\circ}$   $\rightarrow$ S, J1: N005 $^{\circ}$  / SV to V, J2: N100 $^{\circ}$ /V to SV)

For construction stage, Project Authority has planned for drilling additional 18 nos. of boreholes at the proposed site to explore sub-surface strata (including one borehole in river valley along dam axis) to carry out geotechnical tests required to determine the permeability and competency of the strata.

The Additional Chief Executive Officer (HW), KBLPA, Bhopal has requested the Deputy Director General, GSI, SU: MP Bhopal vide letter no. के. बे. लिंक प. प्रा/ भोपाल/HW-26/ दिनांक: 19/02/2025 for signing a Memorandum of Understanding for advanced-construction and construction stage work for Ken-Betwa Link Project and also provided desired details and quantum of work pertains to the Project in given (by GSI) format. It is estimated that approximately **200 (Two Hundred) geologist's man days** will be required to complete desired investigation in the Field Season 2025-26 to Field Season 2029-30 (**5 Years**). It is to be included as an additional project for GSI in Field Season 2025-26. However, these days may be revised in future marginally depending upon progress of actual work.

## 2. Title of the Programme

Geotechnical investigation for advanced construction and construction phase work for Daudhan Dam, Upper Level Tunnel and Lower Level Tunnel and Ken-Betwa Link Canal Under Ken Betwa Link Project in Chhatarpur and Panna Districts of Madhya Pradesh.

## 3. Objectives

To carry out geotechnical investigation for advanced construction and construction stage work for Daudhan Dam, Upper Level Tunnel, Lower Level Tunnel and Ken-Betwa link

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canal and its cross drainage works under Ken Betwa Link Project, lies in Chhatarpur, Panna, Tikamgarh, and Niwari Districts of Madhya Pradesh.

#### 4. Scope of the work

##### 4.1 Execution of Daudhan Dam and its Appurtenant Structures.

- To provide geological and geotechnical recommendations on inputs considered by the Contractor for design of Dam and appurtenant structures / grouting plans / slope stabilization.
- To check and analyze / compare geological data collected by the Contractor / existing geological data, and recommend suitable supports / measures for safety of structures.
- To recommend suitable levels for dam foundation for Concrete Dam / CoT for earthen Dam after inspections and analysis of geological data.
- To inspect construction materials (boulders / sand / aggregates), study test reports of these materials and offer their recommendations on their suitability for construction, as and when desired by KBLPA.
- To compile geological / geotechnical data generated during construction and to submit the same to KBLPA in organized form with interpretations.
- To inspect / analyze reservoir area from geological / geotechnical point of view as required by KBLPA and submit its recommendations for stabilization treatment, if any.
- To undertake / conduct site visits as and when desired by KBLPA.

##### 4.2 Execution of Ken-Betwa Link Canal.

- To provide geological and geotechnical recommendations on inputs considered by the Contractor for design of Canal, Cross Drainage works and other appurtenant structures / grouting plans / slope stabilization.
- To check and analyze / compare geological data collected by the Contractor / existing geological data, and recommend suitable supports / measures for safety of structures.
- To inspect construction materials (boulders / sand / aggregates), study test reports of these materials and offer their recommendations on their suitability for construction, as and when desired by KBLPA.
- To compile geological / geotechnical data generated during construction and to submit the same to KBLPA in organized form with interpretations.
- To undertake / conduct site visits as and when desired by KBLPA.

On the basis of above works under Scope, GSI assessed the works as follows,

##### *Work components for Advanced Construction stage:*

- a. Drill core logging of 18 boreholes (dam site only) for nearly total 350m of drilled length tentative).
- b. Detailed mapping of along Dam Axis for about 2100m length on 1:1000 scale (including 200m upstream and 300m downstream area of dam axis).

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- c. Detailed mapping along tunnel alignment for about 3100m length on 1:1000 scale (including 200m upstream and 300m downstream area of dam axis).

**Work components for Construction stage:**

- a) Foundation mapping of about 35,000 sq m area on 1:100 scale (area covering Over Flow (OF) and Non-over Flow (NOF) sections).
- b) 3D geological logging of COT for about 524m length on 1:100 scale
- c) 3D geological logging of tunnel for about 3.03 km length on 1:100 scale
- d) Any other work on geological and geotechnical aspects, if any

**5. Role of GSI**

- i. GSI will depute Geologists as per the requirements of the work as requested by KBLPA and assessed by GSI.
- ii. GSI will provide interim reports/notes on geotechnical investigation and other related structures within 15 days after each field visit.
- iii. GSI will submit one copy of the final report with supporting documents along with one soft copy to the Project Authority after completion of geological investigations.
- iv. GSI will submit Annual report FSP-wise after the completion of six months of the field season, subject to the submission of data pertaining to geological investigations, laboratory input data and any other relevant data by Project Authority.

**6. Role of KBLPA**

- i. Project Authority will extend necessary facilities for Geologists to carry out the field investigations. The work of drilling / auguring to gather subsurface geological data will be arranged by the Project Authority and the data will be made available to GSI for logging and interpretation. Project Authority would arrange for water percolation test in boreholes while following the BIS codes as and when suggested by GSI and furnish the results to GSI for analysis & interpretation.
- ii. Plans and sections on a suitable/required scale will be provided by Project Authority. Ground markings in the form of concrete pillars will be done by Project Authority.
- iii. Site specific studies will be conducted in association with the officers of KBLPA, who are familiar with the project site.
- iv. Junior Engineer along with survey instruments for survey work, as and when required, will be provided by Project Authority. One officer of KBLPA will accompany the GSI team during field investigations.
- v. Project Authority will assist in required data acquisition from the State Govt. / Central Agencies during the course of geotechnical investigations.
- vi. Necessary/appropriate clearance/permission for the GSI's work, if required, will be obtained by Project Authority.

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- vii. Required field manpower will be provided to GSI team by Project Authority for the required camping purpose, for transportation of equipment, if any and to carry out the field work.
- viii. KBLPA will make all necessary arrangement for camping and transport (to & fro) arrangement/ reimbursement as per entitled class for the officers of GSI visiting the project.
- ix. Necessary arrangements for the visit of Supervisor / Expert / Senior officer of GSI would be made available by KBLPA in respect to transport (**in entitled class**) to and fro from HQ & suitable camping/accommodation at the site or its near vicinity.
- x. KBLPA would provide facilities of obtaining color printouts of maps/text/photos for smooth and hassle-free submission of study notes/reports.
- xi. KBLPA is to display on the signboard at the construction site during the construction stage that - 'Geotechnical service on the construction is rendered by Geological Survey of India, Ministry of Mines, Government of India.'
- xii. Proper safety measures are to be ensured by the Project Authority to field Geologist/visiting Supervisory Officers/experts/senior officers of GSI.
- xiii. During foundation mapping of spillway blocks/ stilling blocks/ slope stability study site, proper cleaning and dewatering of mapping surface/ mapping face should be ensured by the Project Authority before visit/start of the mapping work by the GSI officials.

#### **7. Joint Responsibilities**

- i. Carry out data collection, both field and lab and their interpretation.
- ii. All the data generated through this MoU, shall be fully accessible to the GSI and KBLPA.
- iii. The research papers published, shall include authorships from the officers from GSI and KBLPA.

#### **8. General Provisions**

This MoU shall supersede all previous oral and written communications, representations and undertaking between the parties on this issue.

Each of the Parties recognizes that the successful implementation of this MoU to the mutual satisfaction and benefit of the both parties will require a significant degree of cooperation and good faith on behalf of both Parties. Each of the Parties resolves to act in good faith and in accordance with the spirit of this MoU to implement the provisions in accordance with the mutual desire and in the interest of the Parties.

#### **9. Validity**

The MoU shall be effective from the date of signing and may continue for a period of **FIVE YEARS** and may be extended, if required by mutual consent.

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## 10. Financial Implication

### 10.1 Schedule of Rate

- i. The rates/charges applicable to this MoU are as per the approved **Schedule of Charges 2023 of GSI** with applicable escalation, audit charges, service tax in respect of geotechnical studies.
- ii. Consultancy charges for the work carried out after FY 2024-25 onwards, falling within the subsequent FYs will be liable for enhancement @ 5% (simple escalation) during commencement of each subsequent financial years as per SOC 2023.
- iii. Cost estimate of the entire work is **₹33,98,164/-** (Rupees thirty-three lakh ninety-eight thousand one hundred and sixty-four) only.

Sl. No.	Extent of Surveys	Rate per unit for the FS 2025-26* as per SOC-2023	Total Estimated Cost in Rs.
A	Geological man days 200 geologist days #	₹ 13,090/- day	₹26,18,000/-
B	Audit & T & P Charges @ Rs. 10% over A		₹2,61,800/-
C	<b>Total (A+B)</b>		<b>₹28,79,800/-</b>
D	GST @ Rs. 18% over C		₹5,18,364/-
E	<b>Total (C+D)</b>		<b>₹33,98,164/-</b>

\*Valid up to 31.03.2026.

#Note 1: Field days may be increased /decreased as per the geological requirement and accordingly the charges may change. Amount once paid to GSI, cannot be refunded.

Note 2: Payment of GST is subject to change in the Budget & Govt. Policy.

Note 3: Actual fare for the geological survey party by the entitled class from the office to work spot and back will be charged extra, if not arranged by KBLPA.

### 10.2 Schedule of Payment

- i. KBLPA will make the payment of **13,59,266/-** (with the break-up of Service Charges **₹11,51,920/-** and GST **₹ 2,07,346/-** only to GSI as 40% advance before the commencement of the work, as per revised SOC of GSI. The above payment may be made through Non-Tax Receipts Portal (NTRP) by accessing '<https://bharatkosh.gov.in>'. The payment can be made against the concerned receipt types under the purpose i.e. payment type 'scientific & Technical Consultancy Services' under 'GSI CR NAGPUR RECEIPTS' under Ministry of Mines with clear mention of Service Charges amount to GSI and GST amount separately in Remarks Box. After payment made, the Payment Receipt with Transaction Reference

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Number is to be communicated to GSI.

- ii. The field investigation at the site will be taken up on receiving 40% of the estimated charges worked out for the investigations, as advance payment and remaining 60% shall be payable in accordance with the invoices raised by the Accounts Division every six months. The final report will be submitted to KBLPA after receiving all the payments/final adjustment of the bills.
- iii. Reconciliation of the payments made in advance and the final consultancy charges, if modified, due to any escalation of rates (as per GSI's SoC 2023) because of the work being carried out in subsequent financial years and / or due to increase of workload under the purview of the present MoU or revised tenure of MoU will be made at the completion of work.
- iv. No Income Tax to be deducted at source as GSI is Central Government Department and is not an IT assessee. It is to make clear that the amount once paid to GSI, cannot be refunded.
- v. Any changes in the financial laws/tax structure/levies of the land during the period of the MoU would be subject to adjustment in the cost estimate, given above.
- vi. At any time during the progress of work if any, geologist days is increased based on scientific consideration in consultation with KBLPA, KBLPA will have to make an additional payment to GSI, CR.
- vii. The MoU may be discontinued by a notice of minimum period of three months from either side after working out mutually agreeable time frame. Till such time, the MoU is valid, all payments will be cleared by KBLPA.
- viii. GSI, CR should be indemnified from all legal matters by KBLPA.
- ix. The GSTIN of GSI, Central Region (Regional Head Quarters) is **27AAAGA0703M1ZR**. KBLPA will quote the above GSTIN of GSI, CR (Regional Head Quarters) compulsorily in their bill/invoice.

#### 11. **Authorized Persons**

Any notice, request or other communication required or permission to be given under this MoU shall be in writing in the English language and shall be delivered via email, in person or by speed post at addresses as follows or the authorized persons of two organizations to be notified separately:

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15/07/2025

12/11/2024

<p>IF to GSI</p> <p>The Deputy Director General Geological Survey of India State Unit: Madhya Pradesh E-5, Arera Colony Bhopal – 462 016</p> <p>E-mail: <a href="mailto:ddg.sump.bhopal@gsi.gov.in">ddg.sump.bhopal@gsi.gov.in</a></p>	<p>IF to KBLPA</p> <p>ACEO (Head Works), Ken Betwa Link Project Authority 2nd Floor, (Visvesvaraya Bhawan), 'Kolar Tiraha' Link Road No. 3, Kolar Sinchai Colony, Bhopal - 462042</p> <p>E-mail: <a href="mailto:aceohwbpl-kblpa@gov.in">aceohwbpl-kblpa@gov.in</a></p>
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## 12. Final Outcome

- i. The final outcome will be the report on Geotechnical investigation for advanced construction and construction stage work for Daudhan Dam, Upper Level Tunnel, Lower Level Tunnel and Ken-Betwa link canal with its cross drainage works under Ken Betwa Link Project lies in Chhatarpur, Panna, Tikamgarh, and Niwari Districts of Madhya Pradesh.
- ii. In case of publication of data generated out of the present work, consent of each party shall be taken.

## 13. Arbitration

In the event of any dispute or difference relating to, arising from or connected with the MoU, such dispute or difference shall be mutually discussed between the parties and will be finalized to the satisfaction of both the parties. Further any dispute arising out of this MoU shall be settled by Administrative Mechanism for Resolution of Disputes (AMRD) vide OM No. 334774/ DoLA/ AMRD/2019 Dated 31/03/2020 issued by Department of Legal Affairs, Ministry of Law & Justice, Government of India.

## 14. Force Majeure

Neither party shall be held responsible for non-fulfillment of their respective obligations under this agreement due to the exigency of one or more of the force majeure events such as but not limited to flood, earthquakes, acts of GOD, war, strike, lockouts, epidemics, riots, civil commotion etc. provided on the occurrence and cessation of any such events, the party affected thereby shall give a notice in writing to the other party within ten working days of such occurrence or cessation. If the force-majeure condition continues beyond six months, the parties shall then mutually decide about the future course of action.

## 15. Confidentiality

Both parties acknowledge the confidentiality of the information which may be transferred between the parties or obtained or developed during the course of this exchange from time to time as being essential to this MOU and agree not to disclose the same to any third party

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or any outside parties. However, each party shall be free to disclose this information as is required to be disclosed by official authorities in accordance with applicable law or regulation.

**16. Intellectual Property Right (IPR).**

Intellectual property rights for results of investigations should be secured and the ownership of intellectual Property Rights shall vest in both parties.

**17. Entire Contract and Amendments**

This MoU will be signed along with attached signed addends and / or subsequent agreements, which will constitute the entire agreement between the GSI and KBLPA. No prior written or oral representations shall be binding and all amendments and / or subsequent agreements shall be in writing and signed by a party of equal position as those of the executing parties here to.

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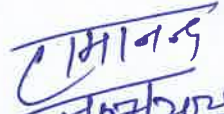

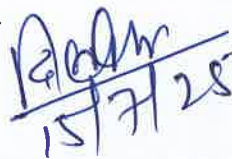





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IN WITNESS WHERE OF the Parties hereto have duly executed this MoU.

The 15<sup>th</sup> day of July, **Two thousand and twenty-five.**

<p>For GEOLOGICAL SURVEY OF INDIA (GSI), CENTRAL REGION, GOVT. OF INDIA By</p> <p>Signature:  Name: रामानन्द कुमार / RAMANAND KUMAR Designation: निदेशक / Director भारतीय भूवैज्ञानिक सर्वेक्षण / Geological Survey of India खान मंत्रालय भारत सरकार / Ministry of Mines, Govt. of India रा.ई. मध्य प्रदेश, भोपाल / S.U. Madhya Pradesh, Bhopal for DDG, SUMP, Bhopal</p>	<p>For KEN BETWA LINK PROJECT AUTHORITY BHOPAL, GOVERNMENT OF INDIA By</p> <p>Signature:  Name: Raj Kumar Mishra Designation: ACEO (HW)</p>
<p>In the presence of</p> <p>Witness 1.  Signature: दिलीप कुमार सोनी / DILIP KUMAR SONI Name: निदेशक / Director भारतीय भूवैज्ञानिक सर्वेक्षण / Geological Survey of India खान मंत्रालय भारत सरकार / Ministry of Mines, Govt. of India Designation: रा.ई. म.प्र., भोपाल / S.U.: M.P., Bhopal</p> <p>Witness 2.  Signature: दिलीप कुमार यादव / Dilip Kumar Yadav Name: निदेशक / Director भारतीय भूवैज्ञानिक सर्वेक्षण / Geological Survey of India खान मंत्रालय, भारत सरकार / Ministry of Mines, Govt. of India Designation: रा.ई. म.प्र., भोपाल / S.U.: M.P., Bhopal</p>	<p>In the presence of</p> <p>Witness 1.  Signature:  Name: Pradeep Kumar Saxena Designation: Consultant - I</p> <p>Witness 2.  Signature:  Name: MITHLESH KUMAR Designation: Team Leader, PMC KBLP</p>