BEFORE THE HON'BLE NATIONAL GREEEN TRIBUNAL

AT NEW DELHI

INDEX

IN

SUPPLEMENTARY AFFIDAVIT

IN

ORIGINAL APPLICATION NO. 44 OF 2024

IN THE MATTER OF:-

JOT SINGH BISHT .....Petitioner

Versus

STATE OF UTTARAKHAND AND ORS. .....Respondents

NOTARY GOVT. OF UTTARAKHAND; INDIA C.B.HATWAL ADVOCATE/NOTARY Reg. No.5[illegible]2022

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अजय कुमार/Ajay Kumar
अपर महाप्रबधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
A G M (Project-2)/Rishikesh-Karanprayag Project
रेल विकास निगम लि./ Rail Vikas Nigam Ltd.
(भारत सरकार का उपक्रम)/ A Govt. of India Enterprise

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NOTARY
C.B. HAYWAL
ADVOCATE/NOTARY
Reg. No.52[illegible]
GOVT. OF UTTARAKHAND, INDIA

Filed By

Ananya Thapliyal

(Counsel for Respondent No.4)

Phone No.-8979055846

Email Id- thapliyalananya15@gmail.com

PLACE: NEW DELHI

DATE: 11.10.2024

अजय कुमार/Ajay Kumar
अपर महाप्रबंधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
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ऋषिकेश (उत्तराखण्ड)–249201/ Rishikesh (Uttarakhand)-249201

BEFORE THE HON'BLE NATIONAL GREEEN TRIBUNAL

AT NEW DELHI

SUPPLEMENTARY AFFIDAVIT

(On Behalf of Respondent No.4)

IN

ORIGINAL APPLICATION NO. 44 OF 2024

IN THE MATTER OF:-

JOT SINGH BISHT .....Petitioner

Versus

STATE OF UTTARAKHAND AND ORS .....Respondents

APPLICATION ON BEHALF OF THE RESPONDENT NO.4 i.e., RAIL VIKAS NIGAM LTD. TO BRING ON RECORD THE ENVIRONMENT IMPACT ASSESSMENT REPORT (EIA REPORT) AND OTHER ADDITIONAL DOCUMENTS BY WAY OF SUPPLEMENTARY AFFIDAVIT IN O.A. NO. 44 OF 2024 TITLED AS "JOT SINGH BISHT v. STATE OF UTTARAKHAND AND ORS."

To,

The Hon'ble Chairperson, his other companion Judicial members and the Expert Members of the Hon'ble National Green Tribunal,

MAY IT PLEASE YOUR LORDSHIPS-

The Respondent No.4 herein most respectfully submits as under:-

1. That this Interlocutory Application is being filed by the Respondent No.4 i.e., Rail Vikas Nigam Ltd. as a part and parcel of O.A. No. 44 of 2024, titled as ***Jot Singh Bisht v. State of Uttarakhand and Ors.,*** and as such the contents of the said Original Application are not being repeated for the sake of brevity.

अजय कुमार/Ajay Kumar
अपर महाप्रबधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
A G M (Project-2)/Rishikesh-Karanprayag Project
रेल विकास निगम लि./ Rail Vikas Nigam Ltd.
(भारत सरकार का उपक्रम)/ A Govt. of India Enterprise
ऋषिकेश (उत्तराखण्ड)–249201/ Rishikesh (Uttarakhand)-249201

1. That this Hon'ble Tribunal on the previous date by the order dated 23.09.2024 granted further time to the Respondent No.4 i.e., RVNL, file Supplementary Affidavit brining on record certain relevant documents for deciding the issue.

   The copy of the order dated 23.09.2024 passed by this Hon'ble Tribunal is being filed herewith as **Annexure B-1** to this affidavit.

2. That it is pertinent to mention that the Environment Impact Assessment Report (EIA Report for reference) of the Railway line project bearing of distance 126 kms being reproduced by way of Supplementary Affidavit wherein the following abstract/ chapters are relevant for reference and as such the same are being reproduced herein as under-

   It is also pertinent to mention that as per the EIA Report, under the Heading **"5.3 SOLID WASTE & MUCK"** is relevant whereby the mitigating measures in handling the solid waste generated during the development site and how much the muck disposal is being reused for the purposes; the reference of which is being reproduced below-

"5.3.1 Solid Waste Generation and Disposal

Waste quantification is carried out to estimate the quantities of waste to be generated by different activities at the project site. For estimation of quantity of solid waste generated from the proposed project, waste generation factors are selected for each activity based on case studies available for similar type of projects, assumptions and past experience.

Domestic Solid Waste generated during Construction from the construction camps has been estimated to be 250 kg/day (Assuming 1000 labourers /camp). Out of it almost 110 kg /day will be biodegradable waste.

During operation solid waste is likely to be generated from the station offices, staff quarters, health centres as given in ***Table 5.1.***

5.3.3 Mitigation Measures

The following practices should be followed at the development site during the construction and operation phase and solid waste shall be handled as per Medical Waste (Management and Handling) Rules, 1998. The flowchart in ***Fig.5.3 and 5.4*** *gives the management plan for solid waste during construction and operations stage.*

- *In case debris generated from cutting in hill areas could not be reused, method of disposal shall be addressed like construction of gabion walls on valley side at ridge locations to form a trough for waste disposal. As the ridge locations usually have streams flowing through, length of the pipe provided at the culvert should be extended to let runoff flow out of the disposal location.*

- *Muck shall be recycled in the form of aggregates, filling material, for access roads, embankments etc. The excess muck should be disposed as per Muck Disposal Plan detailed in the following section. After filling up of the disposal site, it should be grassed and suitably vegetated to prevent erosion of the disposed soil.*
- *Saleable items such as metal scrap should be kept separately and cleared off as soon as possible.*
- *Bricks and rubble should be used as fill material at project site and recyclables sold to authorized vendors.*
- *The remaining wastes should be taken out by local body for disposal in common landfill site.*
- *Biodegradable waste generated from the camps shall be composted at site and the compost can be used for landscaping in station and dumping areas.*
- *Store the non-biodegradable waste into large bags or bins for handing over to the municipal authorities or contractors appointed for the purpose on the day of collection notified.*
- *Bio medical waste from health centers shall be managed according to Bio-Medical Waste (Management and Handling) Rules, 1998. Segregated storage at source in coloured plastic bags shall be done (according to the rules) which are to be kept inside sturdy covered containers. For collection, dedicated wheel-barrows are to be used for carrying the containers directly to the storage area. No untreated bio-medical waste shall be kept stored beyond a period of 48 hours. Either it should be incinerated at site or taken to a Common Bio medical waste treatment facility (CBMWTF) if any.*

  The Contractor should depute a team of persons, who is aware of the nature and types of solid waste and should be assigned the responsibility for collection, segregation and disposal of solid waste at the proposed project during the construction phase.

The contesting respondent no.4 herein has neither violated any environmental rights nor there is any harm to the vegetation during the course of the project.

The true abstract of the Section 5.3 i.e., "SOLID WASTE & MUCK" which is the part of the EIA Report is being filed herewith as **ANNEXURE B-2** to this affidavit.

3. That it is also pertinent to mention that under the heading "**5.3.3.1.2.- MANAGEMENT PLAN FOR MUCK DUMPING"** whereby the guidelines for

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ऋषिकेश (उत्तराखण्ड)-249201/ Rishikesh (Uttarakhand)-249201

muck dumping is followed by the answering respondent no.4 during the course of the project and as such the same is being reproduced herein under:-

Management Plan for Muck Dumping

The following guidelines shall be followed for muck management. Detailed plan is given in section 9.5 of chapter 9.

Construction

- *Retaining walls with weep holes shall be provided for stability especially around stations and along major rivers like Ganga and Alaknanda.*
- *Gabion walls shall be provided along the down slope of the dumping areas. Where both retaining and Gabion walls are proposed it shall be on the inner side of the retaining wall.*
- *Barrier wall shall be provided on the uphill side of the dumping areas if roads or settlements are present in the uphill.*
- *Fencing shall be done along the perimeter with gates for access to station or maintenance. This will be to prevent the area getting interfered by human activities or animal grazing.*
- *Turfing shall be done on dumping site*
- *The muck shall be dumped in the form of terraces*
- *Settling channel and storage chamber shall be provided along the down slope perimeter for maintaining quality of runoff washing through the muck*

Operation

- *Manpower in the form of watchmen/ Supervisors, main gardeners and labours shall be deployed for protection and maintenance of the sites for at least 4years.*
- *Survival rate of vegetation shall be monitored.*
- *Regular inspection of dumping sites to ensure that no factor is causing or is likely to cause slope instability by competent engineer. Inspection shall be scheduled mandatorily before and after rainy season.*
- *A contingency plan shall be prepared by the concessnaire / contractor for construction as well as operation period to manage any kind of slope instability during the operation period. The Chief project Manager shall be the responsible*

NOTARY
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अपर महाप्रबंधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
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personnel to manage the contingency situation. In case required the protection measures shall be re-strengthened or reconstructed as the need be. In case muck slips down the slope or gets dumped into the water body, it has to be cleared immediately within 48 hours."

It is most respectfully submitted that under **Chapter-9- Environment Management Plan** which is the key to ensure that the quality and its maintenance of the environment shall be protected in the development site and as such various sets of measures to be taken in different stages of the project to reduce adverse environmental impacts.

The true copy of the abstract of Chapter 9 which is titled as **"Environmental Management Plan"** in the EIA Report is being filed herewith as **ANNEXURE B-3** to this affidavit.

NOTE- The true copy of EIA Report will be reproduced at the time of arguments.

4. That it is hereby pertinent to mention that as per EIA Notification of 2006 vide dated 14.09.2006 enshrined in Gazette of India under Part-II and Section 3, sub section (ii) of ministry of Environment and Forests, whereby it indicates the following projects or activities which requires prior environmental clearance from the concerned regulatory authority. The Railway Projects are not included in the EIA Notification of 2006.

The true abstract of EIA Notification of 2006 vide dated 14.09.2006 is being filed herewith as **ANNEXURE B-4** to this affidavit.

NOTE- The true copy of EIA Notification, 2006 will be reproduced at the time of arguments.

5. That as per the notification of EIA Notification 2006, the issuance of environmental clearance is not required in case of the Railway Project in question i.e. Rishikesh-Karanprayag new broad gauge rail line project and as such the letter is being reproduced along with this supplementary affidavit.

The true copy of the letter is being filed herewith as **ANNEXURE B-5** to this affidavit.

6. That in view of the reasons stated above it is expedient in the interest of justice that this Hon'ble Tribunal may graciously be pleased to allow this Supplementary Affidavit to place on record the relevant documents in compliance to the order passed by the Hon'ble Tribunal dated 23.09.2024 otherwise the answering respondent may suffer irreparable loss.

NOTARY ★ C.B.HATWAL ADVOCATE NOTARY Rishikesh (Dehradun) Reg. No.52(01)/2022 ★ GOVT. OF UTTARAKHAND INDIA

अजय कुमार/Ajay Kumar
अपर महाप्रबंधक (परि0-2/ ऋषिकेश-कर्णप्रयाग प्रोजेक्ट
AGM (Project-2)/Rishikesh-Karanprayag Project
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ऋषिकेश (उत्तराखण्ड)-249201/ Rishikesh (Uttarakhand)-24

PRAYER

It is therefore most respectfully prayed that this Hon'ble Tribunal may graciously be pleased to allow this instant Supplementary Affidavit to place on record the relevant documents in compliance to the order passed on 23.09.2024 and or to pass any such other order which the Tribunal may deem fit and proper otherwise the answering respondent may suffer irreparable loss.

PLACE: NEW DELHI

DATE: 11.10.2024

NOTARY
C.B.HATWAL
ADVOCATE/NOTARY
Reg. No.52(01)/2022
GOVT. OF UTTARAKHAND INDIA

Filed By

Ananya Thapliyal

(Counsel for Respondent No.4)

Phone No.-8979055846

Email Id- thapliyalananya15@gmail.com

अजय कुमार / Ajay Kumar
अपर महाप्रबंधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
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ऋषिकेश (उत्तराखण्ड)–249201/ Rishikesh (Uttarakhand)-249201

S.N. 3586
14/10/24

BEFORE THE HON'BLE NATIONAL GREEEN TRIBUNAL

AT NEW DELHI

NOTARY GOVT. OF UTTARAKHAND INDIA
C.B.HATWAL
ADVOCATE/NOTARY
Rishikesh (Uttarakhand)
Reg. No.52(01)/2022
NOTARIAL NOTARIAL
14/10/24

SUPPLEMENTARY AFFIDAVIT

(On Behalf of Respondent No.4)

IN

ORIGINAL APPLICATION NO. 44 OF 2024

IN THE MATTER OF:-

JOT SINGH BISHT .....Petitioner

Versus

STATE OF UTTARAKHAND AND ORS .....Respondents

AFFIDAVIT

I, Ajay Kumar, S/O Shri Narendra Kumar, aged about 43 years, R/O House No. 56, Shanti Vihar, Kanwali Road, near Telephone Exchange, Dehradun, District- Dehradun, Uttarakhand-248001, do hereby solemnly affirm and declare as under:-

1. That the deponent is the authorized representative of respondent no.4 i.e., Rail Vikas Nigam Limited and is filing an accompanying Supplementary Affidavit and he is well conversant with the facts of the case, and competent to swear this Supplementary affidavit. I state the accompanying Interlocutory Application may be read as part and parcel of the said O.A.
2. That the deponent has gone through the contents mentioned in accompanying Supplementary Affidavit which are true and correct to my knowledge and based on record maintained by the respondent no.4 in its normal course of work, and nothing material has been concealed therefrom.
3. That the Annexures to the accompanying Supplementary Affidavit are true/ certified copies of their respective originals.
4.

DEPONENT

अजय कुमार/Ajay Kumar
अपर महाप्रबधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
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भारत सरकार का उपक्रम)/ A Govt. of India Enterprise
केश (उत्तराखण्ड)–249 (Uttarakhand) 249201

S.N. 3586
14/10/24

VERIFICATION:

Verified at Rishikesh on this 14 day of 10 2024 that the contents of my above affidavit are true and correct to my knowledge, no part of it is false and nothing material has been concealed therefrom.

NOTARY
C.B.HATWAL
ADVOCATE/NOTARY
Rishikesh Dehradun
Reg. No.52(01)/2022
GOVT. OF UTTARAKHAND INDIA

DEPONENT
अजय [illegible] Kumar
अपर महाप्रबंधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
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ऋषिकेश (उत्तराखण्ड)–249201/ Rishikesh (Uttarakhand)-249201

This affidevit is sworn before me by
Shri Ajay Kumar
Who is identified by Shri [illegible]
At Rishikesh, Dehradun on 14/10/24

C.B. HATWAL
Advocate/Notary
Reg No. 52(01)/2022
Tehsil Rishikesh
(Dehradun) India

ANNEXURE B-1

Item No. 09 Court No. 2

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 44/2024
(IA No. 460/2024)

Jot Singh Bist Applicant

Versus

State of Uttarakhand Respondent

Date of hearing: 23.09.2024

CORAM: HON'BLE MR. JUSTICE SUDHIR AGARWAL JUDICIAL MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Applicant: None

Respondent: Ms. Anjali Rajput, Advocate for State of Uttarakhand(through VC).
Mr. Mukesh Verma and Ms. Vatsala Tripathi, Advocates for UKPCB (through VC)
Mr. Somesh Chandra Jha and Ms. Saumya Dwivedi, Advocates for MoEF & CC
Mr. Ananya Thapiyal, Advocate for Respondent no. 4
Mr. Varun Chugh and Mr. Karandeep Dahiya Advocates for Respondent no. 5 with Mr.
Vinod Chaudhary Authorized Representative.

NOTARY
C.B.HATWAL
ADVOCATE/NOTARY
Dist. Rishikesh (Dehradun)
Reg. No.52/01/2022
14/10/24
GOVT. OF UTTARAKHAND INDIA

ORDER

1. Learned counsel appearing for respondents 4 and 5 seek further time to file supplementary replies. As a last opportunity, three weeks' and no more time is allowed.

2. List on 17.10.2024.

Sudhir Agarwal, JM

Dr. Afroz Ahmad, EM

September 23, 2024
AB

अजय कुमार/Ajay Kumar
अपर महाप्रबंधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
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ऋषिकेश (उत्तराखण्ड)–24[illegible]

like situation. This would affect the life and property of people leaving downstream. River/stream crossings or adjacent to site (details given in **Annexure 3.10**) at km 1.300, km 2.300, km 3.500 to 4.200,km 5.660 to 6.00,km12.600, km 18.200, km 18.500 to 18.600, km 25.200 to km 25.400, km 33.170 to km 33.230, km 35.440 to km 35.630, km 37.800, km 43.400, km 45.500 to 45.600, km 45.880 to 45.960, km 47.400, km63.200,km 66.800, km 72.750 to 73.250, km 79.400, km 82.700 to 82.820, km 83.500 to 83.750, km 88.700 to 88.750, km90.900 to 91.050, km 95.500, km 101.00, km 101.170 to 101.250, km 107.750 to 107.900, km 109.500 to 109.600, km116.740 to 117.230, km 123.670 to 124.050, km 124.4 are likely areas to get impacted.

Operation

- Structural failure of bridges due to earth quake or landslide
- Failure of slope protection measures

5.2.5.2 Mitigation

Construction

- Major bridges, minor bridges/ culverts are proposed wherever alignment is crossing water channels
- Any proposed construction or dumping shall start at safe level above HFL.
- No natural (perennial or seasonal) streams shall be obstructed.
- In case of dumping the slope shall be maintained in such a way that rainwater runoff can flow either through the surface of the dump area or channels constructed along them.
- In case debris get into the water channels, they shall be immediately removed
- Protection walls shall have weep holes in case of retaining wall and gabion wall itself act as a porous layer for runoff from uphill.

Operation

- The cross drainage structures shall be constructed as per earth quake resistant codes.
- Regular inspection of cross drainage structures and protection measures before and after rainy season shall be done. Repairing if required shall be done immediately

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5.3 SOLID WASTE & MUCK

5.3.1 Solid Waste Generation and Disposal

Waste quantification is carried out to estimate the quantities of waste to be generated by different activities at the project site. For estimation of quantity of solid waste generated from the proposed project, waste generation factors are selected for each activity based on case studies available for similar type of projects, assumptions and past experience.

Domestic Solid Waste generated during Construction from the construction camps has been estimated to be 250 kg/day (Assuming 1000 labourers /camp). Out of it almost 110 kg /day will be biodegradable waste.

During operation solid waste is likely to be generated from the station offices, staff quarters, health centers as given in **Table 5.1.**

अजय कुमार/Ajay Kumar
अपर महाप्रबंधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
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ऋषिकेश (उत्तराखण्ड)–249201/ Rishikesh (Uttarakhand)-249201

Table 5.1: Solid waste generation during operation stage

Facilities Provided	Unit	Basis of Assumption	Quantity	Waste Generated (MT/day)
Passenger	person	Considering floating population	100	0.02
Residential	person	Source: Management of Municipal Solid Waste, Central Pollution Control Board, MOEF	4139.6	2.07
Railway office	person	Manual on Municipal Solid waste, MoUD,2000	7440	1.49
Hospital	Bed	Source: Manual for municipal solid waste management	1	0.000085
Visitors (10% of fixed population)	person	Considering floating population	414	0.06
Total Waste Generated (MT/day)				3.63
Total Organic waste				1.60
Total Inorganic				2.04

During development phase, the project site will generate some amount of wastes, like iron scrap, wood, machinery and bricks, etc. Being predominantly inert in nature, development and demolition wastes should not cause any pollution. Maximum efforts should be made to reuse the waste.

5.3.2 Anticipated Impact

- Waste generated during construction may impact soil, agriculture and water quality
- Waste generated from workers' camps may impact surface and ground water quality and agriculture

Problems could arise from dumping of construction spoils (concrete, bricks) waste materials (from contractor camps) etc. causing surface and ground water pollution. The other construction materials such as steel, bricks, etc. should be housed in a fenced yard. The balance material from these yards should be removed for use/disposal. Mitigation measures include careful planning, cleaning redressing, landscaping and re-vegetation. Inorganic solid waste generated during the construction phase like waste concrete, and mortar, left over aggregate and debris etc. shall be recycled for use in the base layers of paved area i.e. parking pavement. Municipal waste from labour camps can lead to land pollution. Pollution risks may also arise from accidental leakage and spillage of oil or fuel, which may contaminate soil. The overall impact of waste disposal during construction phase could be significant.

5.3.3 Mitigation Measures

The following practices should be followed at the development site during the construction and operation phase and solid waste shall be handled as per applicable rules of Municipal Solid Waste Management Rules, 2000 and Bio-

Medical Waste (Management and Handling) Rules, 1998. The flowchart in **Fig. 5.3 and 5.4** gives the management plan for solid waste during construction and operations stage.

- In case debris generated from cutting in hill areas could not be reused, method of disposal shall be addressed like construction of gabion walls on valley side at ridge locations to form a trough for waste disposal. As the ridge locations usually have streams flowing through, length of the pipe provided at the culvert should be extended to let runoff flow out of the disposal location.
- Muck shall be recycled in the form of aggregates, filling material, for access roads, embankments etc. The excess muck should be disposed as per Muck Disposal Plan detailed in the following section. After filling up of the disposal site, it should be grassed and suitably vegetated to prevent erosion of the disposed soil.
  - Saleable items such as metal scrap should be kept separately and cleared off as soon as possible.
  - Bricks and rubble should be used as fill material at project site and recyclables sold to authorized vendors.
  - The remaining wastes should be taken out by local body for disposal in common landfill site.
  - Biodegradable waste generated from the camps shall be composted at site and the compost can be used for landscaping in station and dumping areas.
  - Store the non-biodegradable waste into large bags or bins for handing over to the municipal authorities or contractors appointed for the purpose on the day of collection notified.
  - Bio medical waste from health centers shall be managed according to Bio-Medical Waste (Management and Handling) Rules, 1998. Segregated storage at source in coloured plastic bags shall be done (according to the rules) which are to be kept inside sturdy covered containers. For collection, dedicated wheel-barrows are to be used for carrying the containers directly to the storage area. No untreated bio-medical waste shall be kept stored beyond a period of 48 hours. Either it should be incinerated at site or taken to a Common Bio medical waste treatment facility (CBMWTF) if any.

The Contractor should depute a team of persons, who is aware of the nature and types of solid waste and should be assigned the responsibility for collection, segregation and disposal of solid waste at the proposed project during the construction phase.

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ADVOCATE/NOTARY
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A G M (Project-2)/Rishikesh-Karanprayag Project
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ANNEXURE B-3

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9. Environment Management Plan

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9. ENVIRONMENTAL MANAGEMENT PLAN

9.1 INTRODUCTION

Environmental Management Plan (EMP) is the key to ensure that the environmental quality of the zones under impact do not deteriorate beyond the expected level due to the construction and operation of the project. The EMP comprises a set of measures to be taken in different stages like the design, construction and operation to eliminate, offset or reduce adverse environmental impacts to acceptable levels during the construction and operation phases related to environment. Adequate environmental management measures need to be incorporated during the entire planning, construction and operating stages of the project to minimize any adverse environmental impact and assure sustainable development of the area.

9.2 ORGANIZATIONAL SET- UP OF IMPLEMENTING AGENCY

Rail Vikas Nigam Limited (RVNL) is the implementing Agency. Project Department in the HQ will be heading the Project Implementation Unit (PIU) in Rishikesh for implementation of the said project. Presently the implementation team is being headed by General Manager (GM), Project –I at head quarter level supported by Chief Project Manager at PIU level, who in turn is supported by Dy. General Managers, Project –II. Currently RVNL does not have in house Environmental expert to supervise the environmental safeguard during execution of the rail project.

9.2.1 Proposed Institutional Arrangement

RVNL, as the Project Executing Agency, shall be responsible for overall implementation of the project, and shall perform its obligations as set forth herein. A dedicated safeguards team for implementation of environment management measures shall be appointed. The team will be headed by the Chief Project Manager at the concerned Project Implementation Unit (PIU) at field level. It is proposed that the CPM is shall be assisted by an Environment expert along with other Engineers as DGM. A construction supervision consultant (CSC) firm shall be recruited to supervise and administer civil works contracts and to ensure the works are executed in accordance with the technical specifications and contract conditions including implementation of Environmental Management Plan. The CSC team will include Environmental and landscape specialist and R&R specialist. Roles and responsibilities of RVNL, CSC and Contractor shall be as given in **Table 9.1**. A flow chart showing the proposed Institutional arrangement is given in **Fig. 9.1.**

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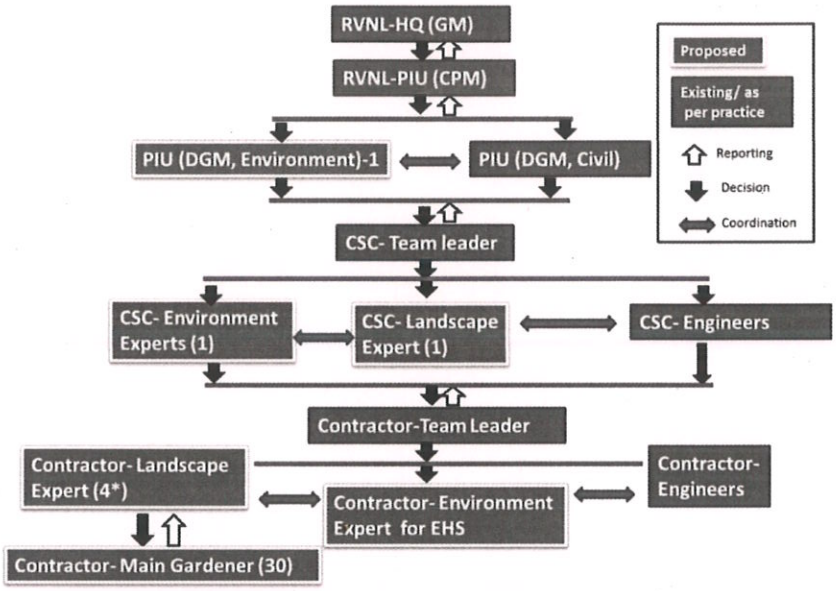

*To supervise during clearing of vegetation from slopes and landscaping. Since vegetation is a major issue in terms of slope stability as well as wildlife habitat 4 supervising experts have been proposed who shall be deployed for separate stretches

** One gardener for each dumping site

Fig. 9.1: Institutional Arrangement of Implementing Agency

Table 9.1: Roles and Responsibilities

Sl. No.	Agency	Responsibility
1	**RVNL**	• Ensure that the project complies by the laws / Act/ Guidelines of Government of India and Uttarakhand and that of Railway Ministry. • Ensure that contract documents include all relevant parts of the EIA, EMP and project agreements • Ensure that sufficient funds are available to properly implement all agreed environmental safeguards measures for the project. • Obtain all statutory clearances, permissions and NOCs applicable for the Project. • Review the environmental performance of the project through an assessment of the annual environmental monitoring reports • Overall project coordination and management through PIU and CSC • Ensure updating of the EMP if any new or unanticipated environmental impacts occur during project implementation due to change in design. • Interact with the Environmental Expert of the Supervision Consultant on the state of the environment and mitigation and enhancement measures adopted;

Sl. No.	Agency	Responsibility
2	**Construction Supervision Consultant**	• Review and update the Environmental Management Plan prior to Start of Work. • Development of Site Specific Checklist for Environment management measures • Supervision of implementation of environmental management measures • Completion of monitoring checklists monthly • Close coordination and communication with the contractor to facilitate implementation of all mitigation measures identified in EMP. • Review of Monthly Compliance Report Submitted by Contractor and also preparing Environment Safeguard Compliance Report independently after Six Month. • Provide technical support and advise for addressing complaints and grievances • Conduct training and awareness programs on implementation of environment safeguards for RVNL, PIU and the contractors during the pre-construction stage and further organize on the job or subject specific training for the contractor during project implementation as necessary • Provide technical advice and on the job training to the contractors as necessary • Preparation of annual monitoring reports based on the monitoring checklists, monitoring report and submission to RVNL • Review and approve updated/revised contract specific EMP's if an new or unanticipated environmental impacts occur during project implementation due to design change or other reasons. • Facilitate effective implementation of the Grievance Redress Mechanism to address affected people's (including those whose structures would get affected due to vibration or for loss of ground water table due to tunnelling) concerns and complaints, promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people;
3	**Contractor**	• Responsible for the physical implementation of the mitigation measures proposed in the Environmental Management Plans (EMP) associated with the construction activities at the construction site.

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Sl. No.	Agency	Responsibility
		• Responsible for implementation of the Environmental Monitoring Program (EMOP) on collection of environmental quality data. • Participate in induction training on EMP provisions and requirements delivered by the PIU/ CSC • Obtain necessary consent to operate for Batching Plant, WMM Plant etc., Applicable permits for projects and other relevant permissions from relevant agencies for associated facilities for project road works, prior to commencement of civil works contracts • Participate in resolving issues as a member of the Grievance Redress Committee (GRC) • Respond promptly to grievances raised by the local community or and implement corrective actions.

9.2.2 Proposed Monitoring and Reporting System

For effective implementation of Environment Safeguards, the environment expert at PIU level , who will be monitoring the compliance of Environment Safeguards for the Project and shall be assisted by the Environment Expert and Landscape expert of CSC. Environment experts under the contractor shall be designated as EHS Officer , who along with Landscape experts of Contractor shall discharge the duties / responsibility as outlined in the EMP and shall help the Engineer in approving various plans like location and lay out of Labour camps, Construction camp/ site , dumping sites, road network in line with EIA and EMP.

Contractor shall submit the Self certified Monitoring Report every month to CSC, who shall verify the Compliances of Environment Safeguards in Monitoring Report and advice / direct the contractor for preventive or remedial actions if required. The CSC shall submit the monitoring report verified by him to the PIU for review. These reports after approval of the PIU shall be submitted to RVNL – HQ.

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9.3 TRAINING REQUIREMENT

The existing limited implementation capacity can affect environmental outcomes despite safeguard provisions. The dearth in capacity will be addressed through enhanced technical assistance and training. Training programs in Environmental Safeguard shall be conducted at Headquarter level & PIU level for Engineers, Construction Supervision Consultant & Contractors and on-site training for workers directly involved in construction to improve environmental awareness, construction practices, legislative compliance requirements, EMP implementation requirements and roles and responsibilities.

9.4 GRIEVANCE REDRESSAL MECHANISM

A project specific grievance redress mechanism (GRM) will be established to receive, evaluate and facilitate the solution of affected people's concerns, complaints and grievances about the social land environmental performance at the level of the Project. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. The project-specific GRM is not intended to bypass the government's own redress process. The GRC will comprise of the:

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(i) GM, RVNL (HQ)- Chairman

(ii) District collectors or Affected district- Co Chairman

(iii) Chief Project Manager, PIU

(iv) Environment Expert, PIU- Coordinator

(v) Environment Expert from the CSC

(vi) Resettlement Expert from the CSC

(vii) A representative from Affected Persons community.

(viii) Environment Expert, Contractor

PAPs will have the flexibility of conveying grievances/suggestions in person to the PIU's local office, orally by calling the GRC's coordinator, or in writing by submitting their grievances to the local PIU office and contractor's site. Local contact number shall be posted on signboards at different points of the project site. A complaint register shall be maintained by the Coordinator at PIU's office and also by the contractor's environmental officer at the construction sites to record the details related to the date of complaint, type of complaint, date of personal hearing, action taken and date of communication sent to complainant will be recorded. The coordinator will consolidate all grievances, categorize and prioritize them and report any serious cases to the Chairman, GRC He/she will investigate grievances through site visits and consultation with relevant parties like affected persons, contractors etc. with the support of the CSC's Resettlement Expert. If grievances are not resolved at this stage they will be sent to the Co-Chairman who represents the State Authority.

9.5 MUCK DISPOSAL MANAGEMENT PLAN

The following measures shall be taken while disposing the muck however site specific design shall be prepared by the concessionaire/ contractor before disposing. **Table 9.2** provides management measures for each dumping site. Schematic diagrams have been provided for D-4,D-11 and D-15 in **Annexure 9.1.**

Table 9.2: Dumping site specific management measures

Dumping Code	Management measures	Approximate Length (m) & Area (sqm)	Remarks/ Schematic Diagram
D-1	Two side retaining wall for stability to station area (m)	5365	Not fragmenting habitat. Fencing is proposed to prevent elephant – vehicle conflict
	Left side fencing for preventing animal movement (m)	2543	
	Turfing on dumping site (sqm)	533262	
	Trees can be planted and preferably retained with row intervals of 10 m for operation of compacting machines	For Plantation Big trees at 5 m interval and small trees at 3m interval	
	Side drainage channels	5375	

Dumping Code	Management measures	Approximate Length (m) & Area (sqm)	Remarks/ Schematic Diagram
D-2	Two side retaining wall (m)	2103	Not fragmenting habitat. Fencing is proposed to prevent elephant – vehicle conflict
	Two side fencing for preventing wild animals (m)	2103	
	Side drainage channels	2103	
	Turfing on dumping site (sqm)	245556.5	
	Trees can be planted and preferably retained with row intervals of 10 m for operation of compacting machines	For Plantation Big trees at 5 m interval and small trees at 3m interval	
D-3	Wall at top end (m)	937	D15 Sample
	Gabion wall on inner side of retaining wall (m)	1448	
	Retaining wall along the river above HFL (m)	1448	
	Turfing on dumping site (sqm)	65860.5	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	1452	
	Fencing along the perimeter with gates on access point for station	2077	
D4	Turfing on dumping site (sqm)	184479.75	D4 sample
	Gabion wall above HFL (m)	997	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	997	
	Fencing along the perimeter with gates for maintenance (m)	2594	
D-5	Turfing on dumping site (sqm)	131885.15	D4 sample
	Gabion wall above HFL (m)	992	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	992	
	Fencing along the perimeter with gates for maintenance (m)	1986	
D-6	Wall at top end (m)	340	D15 Sample
	Gabion wall on inner side of retaining wall (m)	460	
	Retaining wall along the river above HFL (m)	460	

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Dumping Code	Management measures	Approximate Length (m) & Area (sqm)	Remarks/ Schematic Diagram
	Turfing on dumping site (sqm)	24150.2	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	460	
	Fencing along the perimeter with gates on access point for station(m)	793	
D-7	Gabion wall on both side of the water channel	396	D11 sample
	Fencing along the perimeter with gates for maintenance	492	
	Turfing	12341.15	
	Settling channel and storage for maintaining quality of runoff washing through the muck	396	
D-8	Wall on left end (m)	598	D15 sample
	Gabion wall on inner side of retaining wall (m)	503	
	Retaining wall along the river above HFL (m)	503	
	Turfing on dumping site (sqm)	130704.5	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	503	
	Fencing along the perimeter with gates on access point for station	1043	
D-9	Gabion wall on both side of the water channel above HFL(m)	616	D11 sample
	Fencing along the perimeter with gates for maintenance (m)	863	
	Retaining wall along Ganga river above HFL (m)	304	
	Turfing on dumping site (sqm)	38680.1	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	616	
D-10	Wall at top end (m)	150	D15 sample
	Gabion wall on inner side of retaining wall (m)	463	

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Dumping Code	Management measures	Approximate Length (m) & Area (sqm)	Remarks/ Schematic Diagram
	Retaining wall along the river above HFL (m)	463	
	Turfing on dumping site (sqm)	24100.9	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	463	
	Fencing along the perimeter with gates on access point for station(m)	705	
D-11	Gabion wall on both side of the water channel above HFL (m)	1380	D11 sample
	Turfing on dumping site (sqm)	83734.35	
	Fencing along the perimeter with gates for maintenance (m)	1687	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	1380	
D-12	Not recommended for dumping	NA	
D-13	Gabion wall on both side of the water channel above HFL (m)	1040	
	Wall at top end (m)	1172	D11 sample
	Turfing on dumping site (sqm)	1363	
	Fencing along the perimeter with gates for maintenance (m)	60746.1	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	1220	
	Retaining wall facing river Ganga	260	
D-14	Gabion wall on both side of the water channel above HFL (m)	432	D11 sample
	Wall at top end on the western side below road(m)	156	
	Turfing on dumping site (sqm)	118939.65	
	Fencing along the perimeter with gates for maintenance (m)	609	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	432	

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Dumping Code	Management measures	Approximate Length (m) & Area (sqm)	Remarks/ Schematic Diagram
D-15	Wall at top end below road (m)	587	D15 sample
	Gabion wall on inner side of retaining wall (m)	758	
	Retaining wall along the river above HFL (m)	758	
	Turfing on dumping site (sqm)	23013	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	758	
	Fencing along the perimeter with gates on access point for station	1561	
D-16	Wall at top end below road (m)	483	
	Gabion wall on both side of the water channel above HFL (m)	900	D 11 sample
	Turfing on dumping site (sqm)	59848.5	
	Fencing along the perimeter with gates for maintenance (m)	1395	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	900	
D-17	Wall at top end below road (m)	568	D15 sample
	Gabion wall on inner side of retaining wall and on right side downslope (m)	1070	
	Retaining wall along the river above HFL (m)	200	
	Turfing on dumping site (sqm)	234743.65	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	1074	
	Fencing along the perimeter with gates on access point for maintenance	2148	
D-18	Wall at top end below road (m)	240	D15 Sample
	Gabion wall on inner side of retaining wall and on right side downslope (m)	772	
	Retaining wall along the river above HFL (m)	258	

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Dumping Code	Management measures	Approximate Length (m) & Area (sqm)	Remarks/ Schematic Diagram
	Turfing on dumping site (sqm)	Included in D-17	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	264	
	Fencing along the perimeter with gates on access point for maintenance	1140	
D-19	Wall at top end below road (m)	350	D15 sample
	Gabion wall on inner side of retaining wall and on right side downslope (m)	999	
	Retaining wall along the river above HFL (m)	999	
	Turfing on dumping site (sqm)	40485.6	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	1003	
	Fencing along the perimeter with gates on access point for station	2181	
D-20	Gabion wall on both side of the water channel above HFL (m)	672	D 11 sample
	Wall at top end bellow road (m)	278	
	Turfing on dumping site (sqm)	7767	
	Fencing along the perimeter with gates for maintenance and station (m)	845	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	672	
	Retaining wall facing river Ganga	144	
D-21	Gabion wall on inner side of retaining wall along river (m)	1024	D15 Sample
	Retaining wall (above HFL along river) all along the boundary for stability of station (m)	2547	
	Turfing on dumping site (sqm)	180736.5	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	1028	
	Fencing along the perimeter with gates on access point for station	2869	

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Dumping Code	Management measures	Approximate Length (m) & Area (sqm)	Remarks/ Schematic Diagram
D-23	Wall at top end (m)	1274	D15 sample
	Gabion wall on inner side of retaining wall (m)	1569	
	Retaining wall along the river above HFL (m)	1569	
	Turfing on dumping site (sqm)	54776.7	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	1573	
	Fencing along the perimeter with gates on access point for station	3076	
D-24	Gabion wall on both side of the water channel above HFL (m)	888	D 11 sample
	Wall at top end below road (m)	755	
	Turfing on dumping site (sqm)	33541.85	
	Fencing along the perimeter with gates for maintenance (m)	1043	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	892	
D-25	Gabion wall on both side of the water channel above HFL (m)	1396	D 11 sample
	Wall at top end below road (m)	1355	
	Turfing on dumping site (sqm)	72128.45	
	Fencing along the perimeter with gates for maintenance (m)	1468	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	1400	
D-27	Gabion wall on both side of the water channel above HFL (m)	474	D 11 sample
	Wall at top end below road (m)	627	
	Turfing on dumping site (sqm)	53379.15	
	Fencing along the perimeter with gates for maintenance (m)	842	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	478	

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Dumping Code	Management measures	Approximate Length (m) & Area (sqm)	Remarks/ Schematic Diagram
D-28	Wall at top end (m)	644	D15 sample
	Gabion wall on inner side of retaining wall (m)	560	
	Retaining wall along the river above HFL (m)	560	
	Turfing on dumping site (sqm)	85046.75	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	564	
	Fencing along the perimeter with gates for maintenance(m)	1282	
D-29	Gabion wall on inner side of retaining wall (m)	934	D15 sample
	Retaining wall along the river above HFL (m)	934	
	Turfing on dumping site (sqm)	28842.6	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	938	
	Fencing along the perimeter with gates on access point for station	2043	
D-32	Gabion wall on inner side of retaining wall (m)	1007	D15 sample
	Retaining wall along the river above HFL (m)	1007	
	Turfing on dumping site (sqm)	9407.4	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	1009	
	Fencing along the perimeter with gates on access point for station	2088	
D-33	Gabion wall on both side of the water channel above HFL (m)	760	D 11 sample
	Wall at top end bellow road (m)	517	
	Turfing on dumping site (sqm)	69419.5	
	Fencing along the perimeter with gates for maintenance and station (m)	1142	
	Settling channel and storage for maintaining quality of runoff	764	

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अपर महाप्रबधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
A G M (Project-2)/Rishikesh-Karanprayag Project
रेल विकास निगम लि./ Rail Vikas Nigam Ltd.
(भारत सरकार का उपक्रम)/ A Govt. of India Enterprise
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Dumping Code	Management measures	Approximate Length (m) & Area (sqm)	Remarks/ Schematic Diagram
	washing through the muck (m)		
	Retaining wall facing river Alaknanada	300	
D-34	Gabion wall on inner side of retaining wall (m)	784	D15 sample
	Retaining wall along the river above HFL (m)	784	
	Turfing on dumping site (sqm)	104057	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	788	
	Fencing along the perimeter with gates on access point for maintenance	1514	
D-35	Gabion wall on inner side of retaining wall (m)	120	D15 sample
	Retaining wall along the river above HFL (m)	120	
	Turfing on dumping site (sqm)	26654.3	
	Settling channel and storage for maintaining quality of runoff washing through the muck (m)	124	
	Fencing along the perimeter with gates on access point for maintenance	686	

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9.5.1 Construction of Protection Walls

A retaining wall or gabion wall shall be constructed prior to dumping of muck on the down slope side between the river channel and dumping site. On the uphill side of the slope a 50 cm high and 50 cm (approximate) thick wall would be provided to protect the uphill side of the terraces from slipping. This wall is proposed preferably for dumping sites where there are roads or settlements on the uphill side. Loose muck would be compacted layer-wise.The retaining wall may have a side slope of 1.5:1 with carefully packed toe may be constructed. However, the natural ground terrain varies from gentle to semi slope and steep slope. Hence, Random Rubble masonry in cement mortar 1:5 may be constructed for 6 to 8 (or more as per site condition) m high continuous wall along the edge of rock dump towards the river side. The wall will be filled with plum concrete, provided with stone masonry of grade M15 (1:2:4). The foundation of retaining walls structures shall be of cement concrete of grade M10 (1:3:6). A stone filled layer will be placed at the side facing the dumped materials. They should have catty weep holes for the discharge of surface water during rainy season. These holes will be provided with filters. The muck brought by dumpers will be spread in layers behind the wire crate walls and then compacted by rollers

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till the top level is achieved. The retaining / sausage wall shall be laid with proper berm and the muck dumped behind it in layers and compacted by rollers. The process shall be repeated up to 50 cm level below the desired height which shall be laid with good soil for providing grass cover. At a regular interval drain channels shall be provided to drain off the rain water. Proper fencing of the entire area shall also be done.

Alternatively gabion wall can also be used. The gabion wall are made by forming sausages of galvanized iron or steel wire netting of 4 mm dia having 10 cm square or hexagonal opening and filling the gabion with hard local boulders / stones and wrapping the wire net at the top. The sausage walls can withstand large deformation without cracking and are flexible. Further, due to the open structure, they allow free drainage of water. For construction of slope protection measures IRC: SP: 48-1998 shall be referred. The protection wall shall be preferably constructed along the contours to ensure better stability. Both retaining and gabion wall are proposed for locations along major water bodies like Ganga, Alaknanada, Chandrabhaga and also where there are roads at the down slope.

Design of the same shall be prepared by the concessionaire as per site suitability to withstand the stress caused by the muck.

The gabion wall or retaining wall shall be constructed above the high flood level to avoid scouring/ erosion of soil or rock from the base of the protection wall.

9.5.2 Quality Analysis of Muck

Before dumping the muck chemical analysis shall be done to identify hazardous material if any. The same shall be managed as per Hazardous waste (Management and Handling) Rules, 2008. In case hazardous materials like radioactive elements, high arsenic or fluoride laden rocks are found they shall not be dumped into the dumping site and handled as per prescribed rules.

To ensure that no contaminants from the muck is washed away to river water or leaches into the ground, chemical analysis of the runoff water shall also be done. Settling channels are proposed along the protection walls that will be connected to a storage / filtration chamber. In case any contaminant is found in excess, it shall be treated in the channel/ chamber before releasing it into the river.

9.5.3 Muck Transportation

The generated muck will be carried in dumper trucks covered with heavy duty tarpaulin properly tied to the vehicle in tune with international practice. All precautionary measures will be followed during the dumping of muck. All dumpers will be well maintained to avoid any chances of loose soil from being falling during the transportation. All routes will be periodically wetted with the help of sprinklers prior to the movement of dump trucks.

Dumping would be avoided during the high speed wind, so that suspended particulate matters (SPM) level could be maintained. Further, the dumping will be avoided during heavy traffic. After the dumping the surface of dumps will be sprayed with water with the help of sprinklers and then compacted.

9.5.4 Top Soil Management and Clearing of Vegetation

Open and agricultural lands that are to be converted into muck dumping sites, station, approach roads, adit, and construction camps, etc. The top soil shall be stripped to a specified depth of 150 mm and stored in stockpiles of height not exceeding 2m in height. The stockpiling shall be done in slopes of 1:2, to reduce surface runoff and enhance percolation through the mass of stored soil. Vegetation in the dumping sites shall also be cleared before dumping the muck.

However, only those trees shall be cut those would directly impinge into the activity. Uprooting the trees may disturb the natural slope of the area and is not recommended. On the other hand cutting the trees with the stem left in the ground may also have a probable consequence of the dead stem getting rotten and gradually creating a void in below the muck causing it to part of it to subside. Hence the best way would be to retain certain trees along the contour and cut the others to maintain a balance. Cutting of trees shall be done under expert supervision.

The stored topsoil will be spread back to maintain the physico-chemical and biological activity of the soil. The stored topsoil will be utilized for restoration of dumping sites and other area where landscaping and tree plantation work is required.

9.5.5 Soil Treatment

Muck excavated from tunnels are not generally rich in nutrients. In order to make it suitable for the plantation it shall be provided with bio treatment. The work plan will be formulated for re-vegetation of the dumping sites through Integrated Biotechnological Approach. Generally the excavated soils are not fertile, if not treated vegetation cannot be grown properly on such soil surfaces. In order to make it nutrient rich, the following Integrated Biotechnological Approach' is required.

i) Analysis of dumped material for their physical and chemical properties to assess the nutrient status to support vegetation. ii) Formulation of appropriate blends of organic waste and soil to enhance the nutrient status of rhizosphere. iii) Isolation and screening of specialized strains of Mycorrhizal fungi, rhizobium, azotobacter and phosphate solubilizers (biofertilizers inoculum) suitable for the dumped material. iv) Mass culture of plant specific biofertilizer and mycorrhizal fungi. v) Use of locally available manure and compost.

The project authorities are suggested to consult a well reputed organization for implementation of VAM (Vasicular Arbuscular Mycorrhiza) technology, which can supply the strains of mycorrhizal fungi, rhizobium, azotobacter and phosphate solubilizers (biofertilizers inoculum). The important institutions are Institutes of Microbial Technology (IMTECH), Chandigarh and Indian Agricultural Research Institute (IARI), New Delhi

9.5.6 Turfing & Tree Plantation

Dumping site

The waste material dumped at spoil tips would comprise mainly of loose rock fragments that would be mechanically compacted and properly levelled with suitable safe slopes. In order to restore the area, all these spoil tip areas/dumping sites need to be rejuvenated by means of turfing and vegetation growth. Effort shall be made to retain trees along the contour with row interval of 10 m for compaction machineries to be operated. Around 85% of the dumping site area is considered to be turfed as the rest of the space would get consumed in providing protection walls, fencing, retaining existing trees etc. About 15-30 cm of thick layer external soil will be spread on the slope area. Bio engineering techniques like geotextiles shall be used for growth of grass or ground cover. Maintenance of the same shall be done for atleast 4 years followed by periodic inspection. Grass species are as suggested in **Table 9.3.**

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Table 9.3: Suggested Species of Grass

S. No	Grass	Local Name
1	Cynodon dactylon	*Doob*
2	Sucharum spontanour	*Kush*
3	Chimonobambusa falcate	*Gol ringal*
4	Panicum maximum	*Ginni*
5	Apluda mutcr	*Tachita*
6	Thamnocalamus faclouerі	*Dev ringal*
7	Chloris gayana	*Rhodes*

Station or proposed Staff colony areas

Tree plantation shall be done in dumping site 1 and 2 and around station areas where staff quarters are proposed. Effort however shall be made to retain trees in station areas, in rows with row interval of around 10m so that compacting machines can be operated.

Transplantation of trees shall also be done as per feasibility. Transplantation including trimming of fully grown trees , giving wax treatment, of the trimmed branches, uprooting the tree, transporting the uprooted tree to specified site for transplantation as directed by engineer in charge up to 12 km transplanting the uprooted tree by digging a required size of pit, filling it with fresh garden soil, and manure as per requirement and maintaining it for a period of 4 years months by watering , weeding, manuring would cost Rs 5236/tree for trunk size upto 1m.

Approximately, 10% (4.7 lakh sqm) of the total station and yard area has been considered for plantation. Big trees shall be planted at 5 m interval and shrubs at 2.5 m interval. That makes it to 3601 trees and 5763 shrubs. This will help save trees.

The selected species will be planted after their nurseries have been developed. Nearly 1-2 years old saplings would be used for the plantation. The plantation can be carried out in lines across the slopes. Grass and herb species would be used in the inter space of tree species. They will help in providing the continuous chain of support in retaining debris, reinforcing soil and increasing the infiltration capacity of the area. Plant saplings would be raised in biodegradable pots and transplanted as such. The plantation should be done in monsoon season. Pits of 0.45 x 0.45 x 0.45 m will be dug and filled with some soil rich in nutrients. The compost from local organic waste can be used. Shading, Ornamental trees, Shrubs/Herbs and Grasses of different species shall be planted as given in **Table 9.4**. 5% of total area under plantation shall be reserved for annual flowering beds for aesthetic beauty of the project especially in areas proposed to be developed for staff quarters along the stations.

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Table 9.4: Suggested species of trees, shrubs and herbs

Trees				Shrubs			Herbs	
S.No	Scientific Name	Local Name	S.No	Scientific name	Local Name	S.No	Scientific Name	Local Name
1	Rhododendron arboretum	Buransh	1	Rubus lasiocarps	Kala Hisalu	1	Ageratum conzoides	Gunriya
2	Cupressus tourulose	Surai	2	Arisama helleborifollium	Kobra Plant	2	Artemisia capillaris	Pati
3	Myrica esculenta	Kaphal	3	Urtica parviflora	Kandali	3	Bergenia lingulata	Silphara
4	Leonia ovalifolia	Ayar	4	Asparagus recemosus	Satavar	4	Centella asiatica	Brahmi
5	Quercus semecarpifolia	Kharsu Oak	5	Hollerrhena antidysentricr	Dudhi	5	Oxalis comiculata	Amrit sak
6	Abides windrow	Raga	6	Berberies aristata	Rasaut	6	Solanum nigrum	Makoi
7	Taxus wallichiana	Thuner	7	Potentilla fulgens	Bajradanti	7	Tridex procumbens	Ground weed
8	Ficus auriculata	Nimla	8	Viola surpans	Banfasa	8	Withania somnifera	Ashwagandha
9	Betula utilis	Bhoj Patra	9	Urticor dioica	Nakol	9	Eclipta prostrata	Bhringraj
10	Lindera pulcherrima	Nees	10	Agave americana	Rambans	10	Centella asiatica	Madukparni
11	Prunus cornuta	Padam	11	Euphorbia royleana	Shuru	11	Ocimum sanctum	Ram tulsi
12	Grewia optiva	Bhimal	12	Jasminum humile	Shunjai	12	Abrus precatorius	Rati
13	Pinus roxburghii	Chir/Pine	13	Rosa brunonii	Jangli Gulab	13	Asparagus recemosus	Satawari
14	Delinia indica	elephant apple	14	Eupatorium adenophorum	Basinga	14	Plumbago zeylanica	Chitrak
15	Macaranga pustulata	Mallata (Sik)	15	Lavanspicadula	Lavender	15	Ageratum conyzoidesLinn	Sahadevi
16	Qurecus spp	Oak	16	Acorus calamus	Bach	16	Hedyotiscorymbosa	Davana patta
17	Cedrus polycarps	Deodar	17	Pteraacanthus angustifrons	Patyura	17	Anacycluspyrethrum	Akarkara
18	Alnus Nepalensis	Nepal Black Cedar /Utis	18	Flacourtia indica	Belmur	18	Rubus ellipticus	Hinsal

	Trees			Shrubs			Herbs	
S.No	Scientific Name	Local Name	S.No	Scientific name	Local Name	S.No	Scientific Name	Local Name
19	Pinus walechina	Himalayan white pine	19	Bergenia gossypina	Silfoda	19	Lawsonia alba	Mahendi
20	Beilschmiedia roxburghiana	Indian Laural	20	Bouganvillea spp	Bouganvillea	20	Boerhavia diffusa	Snathikari
21	Bombax ceiba	Semal	21	Gerbera grassypina	Jula	21	Abutilon indicum	Indian mallow/Kanghi
22	Prunus armeniaca	Apricot	22	Hibicus spp	Gurhal	22	Aconitum heterophyllum	**Indian** Atees/Arand
23	Prunus persica	Plum	23	Nerium oleander	Kaner	23	Aleo barbadensis	Kumari,Ghirita,Gawarpaltra
24	Junglana regia	Walnut/ Akhrot	24	Rumex hastatus	Bhilmora	24	Allium spp	Wild Garlic
25	Michelia champaca	Champa	25	Thevetia neriifolia	Kaner	25	Coriandrum sativum	Corriender/Dhaniya
26	Sapijdus mukorossi	Ritha	26	TMC (Single/double)	Chandani	26	Zingiber officinale	Zinger/Adrak
27	Aegle marmelos	Bael	27	Tecoma spp	Tecoma	27	Hedychium spicatum	Spiked Ginger Lily/ kapur kachari
28	Aesclus indica	Pangar	28	Asparagus spp	Safed Musali	28	Thalictrum foliolosum	Mamera
29	Shorea Robusta	Raja Sal	29	Rosa spp.	Gulab			
30	Acer oblongum	Kirmola	30	Bauhinia spp	Kachnar			
31	Delonix regia	Gulmohar	31	Murraya koengi	Kath Neem			
			32	Carissa spinarium	Caronda/Karoz			

9.5.7 Irrigation

Irrigation shall be done as required in the dry months from the nearest water source. Flood method of irrigation system shall be strictly avoided instead sprinkling system of irrigation shall be taken up.

During construction water vegetation at the end of each day for two weeks after planting is completed for First two growing season/ as required in case of no rainfall.

9.5.8 Fencing

All the sites shall be properly fenced to protect the area from human and animal interference.

9.5.9 Maintenance

Manpower in the form of watchmen/ Supervisors, main gardeners and labours shall be deployed for preparation, protection and maintenance of the sites for atleast 4 years. The duties will include-

- Maintenance and repair of Landscaping and Tree Plantation work,
- Repair of boundary wall or fencing where ever necessary,
- To protect the plantation area from grazing and damage by wild animals and villagers cutting grass,
- To protect the area from fire, cleaning of dry grass and twigs, etc. from the area and cleaning of inspection paths,
- Cleaning of the outer periphery of the plantation area,
- Keeping regular watch over the plantation area during the dry season for fire
- Seeking help and co-operation of the concerned authority in the protection of the plantation area.
- Pruning and trimming of plants
- Applying water, manure and pesticides
- Regular inspection of dumping sites to ensure that no factor is causing or is likely to cause slope instability by competent engineer. Inspection shall be scheduled mandatorily before and after rainy season.
- Inspect soil and repair eroded areas monthly
- Inspect trees and shrubs to evaluate health twice during growing year, replace if necessary.
- Treat diseased trees and shrubs as and when necessary
- Maintain records of all inspection and maintenance activities.
- All activity complete as per Engineer in charge.

9.5.10 Contingency Plan

A contingency plan shall be prepared by the concessnaire for construction as well as operation period to manage any kind of slope instability during the operation period. The Chief project Manager shall be the responsible personnel to manage the contingency situation. In case required the protection measures shall be re-strengthened or reconstructed as the need be. In case muck slips down the slope or gets dumped into the water body, it has to be cleared immediately within 48 hours.

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9.6 ENVIRONMENT MANAGEMENT PLAN (EMP) MATRIX

The Environmental Management Plan is meant for mitigation/management /avoidance of the negative impacts and the enhancement of the various environmental components along the project roads. For each mitigation measure to be taken, its location, timeframe, implementation and overseeing/supervising responsibilities are lighted in the EMP matrix (**Table 9.5**). The matrix shall be read in conjunction with chapter 5 and chapter 7. The EMP budget is given in **Table 9.6.**

The EMP that will be put into place shall cover construction and operating stages of the project and include the following elements:

- Muck management
- Noise control and management
- Prevention of water body degradation
- Plantation, landscaping and land management
- Measures for social issues
- Occupational, safety and health issues
- Best management practices
- Energy conservation
- Environmental monitoring
- Emergency response plans for emergency scenarios
- Environmental management plan

The Environmental Management Plan (EMP) needs to be implemented right from the conception stage and should continue till the end.

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Table 9.5: Environment Management Plan

Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
A	**Pre-construction Stage**				
A.1	**Clearing / removing vegetation** • Uprooting of ground cover and trees and lead to slope destabilisation • Loss of wild species habitat • Loss of flora	• Retain trees along the contour in dumping yards and leaving around 10 m space between the rows of trees for compaction of muck. Cutting of trees shall be done under expert supervision. • Transplantation of trees shall also be done as per feasibility.	All dumping sites / station	Contractor	CSC/PIU
A.2	**Cut and fill** • 108.62 lakhs cum of and 5.83 lakh cum of fill is involved • Destabilisation of slope • Sliding or debris into nearby water body	• Cut and fill shall be minimised as far as possible • Before starting cut fill near water bodies (at downslope) silt fencing shall be done along the river banks if distance is less than 200 m and without any intervening ridge. • Temporary retaining structure shall also be provided between cut sites and roads/ habitation be it up hill or downhill. • In case of fill if there is road / habitation / river down the hill, retaining structure shall be constructed prior to filling.	Within 200m of river-Bhatnagar, Siwai Station, Adit of tunnel 1,2,3,5,11,13 Dumping- D3, D4, D5, D6, D8, D9, D10, D11, D13, D14, D15, D17, D18, D19, D20, D21, D23, D27, D28, D29, D32, D33, D34, D35	Contractor	CSC/PIU
A.3	**Displacement of PAPs** • Loss of around 213 structures • Loss of livelihood of 38% farmers • Loss of residing place	Prior to start of cons the PAPs shall be compensated / rehabilitated as per relevant statutes.	Rishikesh, Badhal, Attali, Srinagar, Ranihat, Dewali, Malitha, Siwai, mawana, Sumerpur, Saur, Narkot, Bhattnagar, Dungri Path, Kodiyala, Lagli		
A.4	**Relocation of cultural properties** -9 CPRs will be affected including 3 temples, 2 schools, 2 offices, 1 hospital boundary and 1 communication tower	These shall be relocated / compensated prior to start of construction work.	Relocation shall be done at locations agreed by the local people and local body of Rishikesh, Atalli, Srinagar, Siwai, Sumerpur , Bhattnagar.	Contractor	CSC/PIU

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Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
A.5	**Arrangement of Temporary Land for Construction Camp/Labor Camps Locations-Selection, Design and Lay-out**	▪ Contractor shall identify the Temporary land Sites for Construction / Labor Camp on Non Agricultural Land, if inevitable than only agricultural land shall be identified away from settlements to avoid Conflict with local people. The camp shall be atleast 1000m away from settlements. ▪ In case of Agricultural Land is approved, top soil to the depth of 150 cm shall be stripped and Stored for restoration of Sites. ▪ The identified sites shall be approved by the Engineer. After approval of Sites, Contractor shall get approved the draft agreement to be executed with the owner of the Site in line with prevailing laws by the Engineer and Submit the copy of agreement to CSC. ▪ Contractor shall prepare a lay out plan for Construction / Labor Camp and get it approved by the Engineer.	Construction camps/ labour camps		
B.	**Construction Stage & Operation Stage**				
B.1	**Land use pattern** -Out of total area around 68% is vegetation cum forest cover, 28 % is agriculture, 2 % is settlement and rest 2% of the area consists of water bodies. Water bodies will not be converted into any other land use.	• The muck dumping sites shall be re-vegetated/ turfed at spoil top • Changed land use pattern will encourage commercial activity and thus economic development of the region • Sites for construction and labour camps shall be restored to their original condition	All stations, dumping sites.	Contractor	CSC/PIU
B.2	**Topography** • Undergo change due to cut and fill • Site may also be prepared for construction / labour camps	• No mitigation measures required	All along the alignment	Contractor	CSC/PIU
B.3	**Soil** **Construction** • Loss of productive soil • Soil erosion	• Top soil to the depth of 150 cm shall be stripped and Stored for restoration of Sites and landscaping • It shall be ensured that the land taken on lease for and construction camp/ access road is	Slopes of Stations, dumping sites and embankments of approach roads	Contractor	CSC/PIU

Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
	• Soil compaction • Soil contamination **Operation** • Soil erosion from un vegetated/ un protected slopes	restored back to its original land use before handing it over back to land owner. • Agricultural and forest land shall be avoided as far as possible to be used as borrow areas. • IRC: SP: 48-1998 shall be referred for slope protection measures. • Side slopes of the embankment/ dumping areas shall not be steeper than 1:2 and turfing of embankment slopes shall be done along the stretch. • Construction work shall not be done during monsoon season • Soil excavated shall be piled with height not more than 2 m and slope should not be steeper than 1:2. It shall be covered with tarpaulin. • The borrowing/ excavation activity shall be restricted to a maximum depth of 2 m below general ground level at the site.			
		• Movement of vehicles and machineries shall be restricted to the designated haulage routes. • After the construction is over the land shall be restored by tilling and then adding the stored top soil. • Borrow areas, if any shall be managed as per established guidelines given in section **5.2.3.2.** • The storage area and re fuelling stations shall be roofed and rainwater drained separately. The area shall have impermeable paved floor that shall be drained separately to a storage chamber with at least 10% more volumetric capacity than expected volume of runoff. The storage chamber shall be connected to an oil/grease interceptor prior to final disposal. An indicative design (capacity to be decided by the contractor) is given in **Fig. 5.1.** The contractor shall produce a pollution management plan (as part of a CEMP) prior to construction detailing			

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रेल विकास निगम लि./ Rail Vikas Nigam Ltd.
(भारत सरकार का उपक्रम)/ A Govt. of India Enterprise
ऋषिकेश (उत्तराखण्ड)-249201/ Rishikesh (Uttarakhand)-249201

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		on minimization measures of pollution risk in accordance to the General Standards for discharge of Environmental pollution into inland water bodies as per Schedule VI of the Environment (Protection) rules,1986 as given in **Annexure 5.1**			
		Operation • Regular inspection and Maintenance of slope protection measures by engineers and environment expert • Regular inspection and maintenance of vegetated areas by landscape experts and gardeners.			
B.4	**Geology and Landslides** **Construction** • It is a tectonically active and landslide prone zone • Use of heavy machineries, tunnel excavation may trigger landslides, tunnel roof subsidence, vibration, rock fall etc. **Operation** • Vibration due to train movement may lead to cracking or fragmentation of rock and structures in surrounding areas	• Rainy season shall be avoided • Slope embankments should be provided with the grass turf and run off from the stations/ approach roads should be safely disposed of into the drainage channels to prevent any possibility of soil erosion. • Cuttings should be strictly limited to accommodate the desired width for Railway-track. • In case of findings of mineralized zones along the tunnel alignment during excavation, it should be brought to the notice of the Department of Geology and Mining of the State Government for directions from their end. • Practice of controlled blasting shall be strictly adopted. Specific techniques used for minimizing the air overpressure and vibrations should include: • Closer spacing of contour blast holes and charged with less explosive than that of the production blast holes. The spacing thumb rule is about 10 -12 times of blast hole diameter in hard rocks and about 5-6 times of blast hole diameter in soft rocks.	Construction site and geologically week strata/ landslide prone areas;	Contractor	CSC/PIU

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		• Delayed detonator initiation systems • Reduced hole diameters • Splitting of explosive charge columns into discrete charges fired on separate delayed • Avoiding use of exposed explosives • Adequate confinement of explosives • This would reduce vibration as well as cracking and would also be beneficial in controlling seepage of ground water to certain extent			
		• Use of air column method can reduce the cracking and damage of the strata at the periphery. It reduces the radial vector component of blast induced ground vibrations. This method consists of inserting in to the blast hole an inert spacing device of a length about four times of the diameter of the blast hole prior to charging of first explosive cartridge. This leaves requisite air gap in between the explosive cartridge and the end of the blast hole. With this method a plain straight tunnel face can be secured for next drilling cycle without any cracks. **Operation** • To reduce vibration welded tracks shall be used. • The tunnels shall be so designed that vibration is minimised for example with the use of floating slab structure or using self-adhering membrane on tracks etc. to reduce vibration and in turn noise by around 7 dB(A).			
B.5	**Drainage & flood** **Construction** • Drainage channels may get obstructed leading to formation of dam leading to lake burst like situation **Operation**	• Any proposed construction or dumping shall start at safe level above HFL. • In case debris gets into the water channels, they shall be immediately removed. • Major bridges, minor bridges/ culverts are proposed wherever alignment is crossing water channels	River/stream crossings or adjacent to site at km 1.300, km 2.300, km 3.500 to 4.200,km 5.660 to 6.00,km12.600, km 18.200, km 18.500 to18.600, km 25.200 to	Contractor	CSC/PIU

Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
	• Structural failure of bridges due to earth quake or landslide • Failure of slope protection measures	• No natural (perennial or seasonal) streams shall be obstructed/ reclaimed. • In case of dumping the slope shall be maintained in such a way that rainwater runoff can flow either through the surface of the dump area or channels constructed along them. • Protection walls shall have weep holes in case of retaining wall and gabion wall itself would act as a porous layer for runoff from uphill. **Operation** • The cross drainage structures shall be constructed as per earth quake resistant codes. • Regular inspection of cross drainage structures and protection measures before and after rainy season. Repairing if required shall be done immediately	km 25.400, km 33.170 to km 33.230, km 35.440 to km 35.630, km 37.800,km 43.400, km 45.500 to 45.600, km 45.880 to45.960, km 47.400,km63.200,km 66.800,km 72.750 to 73.250, km 79.400, km 82.700 to 82.820, km 83.500 to 83.750, km 88.700 to 88.750, km90.900 to 91.050, km 95.500,km 101.00, km 101.170to 101.250, km 107.750 to 107.900, km 109.500to 109.600, km116.740 to 117.230, km 123.670 to 124.050, km 124.4		
B.6	**Solid Waste** ***Construction*** • Domestic Solid Waste generated during Construction from the construction camps has been estimated to be 250 kg/day including 110 kg /day will be biodegradable waste • Waste generated may degrade soil and water quality if left untreated **Operation** • 3.63 MT/day of total waste including 1.60 MT/day of biodegradable waste is likely to be generated. • Waste generated may degrade soil and water quality if left untreated	***Construction*** • Biodegradable waste generated from the camps shall be composted at site and the compost can be used for landscaping in station and dumping areas. • Muck, bricks and rubble shall be recycled in the form of aggregates, filling material, for access roads, embankments etc. The excess muck should be disposed as per Muck Disposal Plan. • Store the non-biodegradable waste into large bags or bins for handing over to the municipal authorities or contractors appointed for the purpose on the day of collection notified. **Operation** Bio medical waste from health centers shall be managed according to Bio-Medical Waste (Management and Handling) Rules, 1998.	• Construction site and labour camp • Railway colonies	Contractor	CSC/PIU

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		Segregated storage at source in coloured plastic bags shall be done (according to the rules) which are to be kept inside sturdy covered containers. For collection, dedicated wheel-barrows are to be used for carrying the containers directly to the storage area. No untreated bio-medical waste shall be kept stored beyond a period of 48 hours. Either it should be incinerated at site or taken to a Common Bio medical waste treatment facility (CBMWTF) if any.			
B.7	**Muck Disposal** ***Construction*** • Total muck – 11,758,880 cum • 46% shall be reused for filling and as aggregates in construction; • 54% muck shall be disposed in 31 identified sites • 17 sites are found to be moderately suitable, 10 are less suitable and 4 are least suitable in terms of impact on water body, slope stability, vegetation, wildlife and settlement **Operation** • Failure of slope protection structures • Destabilisation due to human and animal interference, non-survival of vegetation	**Construction** • The identified muck sites are close to the project area to avoid hazards related to transport of muck to long distances • Retaining walls with weep holes shall be provided for stability especially around stations and along major rivers like Ganga and Alaknanda. • Gabion walls shall be provided along the down slope of the dumping areas. Where both retaining and Gabion walls are proposed it shall be on the inner side of the retaining wall. • Barrier wall shall be provided on the uphill side of the dumping areas if roads or settlements are present in the uphill. • Fencing shall be done along the perimeter with gates for access to station or maintenance. This will be to prevent the area getting interfered by human activities or animal grazing. • Turfing shall be done on dumping site • The muck shall be dumped in the form of terraces • Settling channel and storage chamber shall be provided along the down slope perimeter for maintaining quality of runoff washing through the muck	Dumping- D3,D4,D5, D6,D8,D9,D10,D11, D13,D14,D15, D17,D18,D19,D20, D21,D23,D27,D28, D29,D32,D33,D34, D35 (except D-12) D-12 is not recommended for disposal from environment perspective.	Contractor	CSC/PIU

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		Operation • Manpower in the form of watchmen/ Supervisors, main gardeners and labours shall be deployed for protection and maintenance of the sites for at least 4 years. • Survival rate of vegetation shall be monitored. • Regular inspection of dumping sites to ensure that no factor is causing or is likely to cause slope instability by competent engineer. Inspection shall be scheduled mandatorily before and after rainy season. • A contingency plan shall be prepared by the concessnaire for construction as well as operation period to manage any kind of slope instability during the operation period. The Chief project Manager shall be the responsible personnel to manage the contingency situation. In case required the protection measures shall be re-strengthened or reconstructed as the need be. In case muck slips down the slope or gets dumped into the water body, it has to be cleared immediately within 48 hours. Detailed guidelines for muck disposal plan as given in **section 9.5** of this chapter shall be followed. Schematic diagrams for management of dumping sites are as given in **Annexure 9.1.**			
B.8	**Plantation & Landscaping** • Landscaping and tree plantation will be done in station areas • Turfing shall be done on top of all dumping spoils for soil stabilization • Retaining the existing trees along the contours at the dumping sites shall be done as far as possible. • Plantation of native species shall be done	• Plantation of native species shall be done. Grass species like Doob, Kush, Gol Ringal, Ginni, Tachita, Dev Ringal And Rhodes shall be planted. • Trees species like Buransh, Surai, Kahal, Ayar, Kharsu etc. Shrub species like Kala Hisali, Kobra, Kandali, Satavar, Dudhi, Rasaut etc. shall be planted. • The selected species will be planted after their nurseries have been developed.	Dumping and station areas	Contractor	CSC/PIU

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		• Nearly 1-2 years old saplings would be used for the plantation. The plantation can be carried out in lines across the slopes. • Grass and herb species would be used in the inter space of tree species. • They will help in providing the continuous chain of support in retaining debris, reinforcing soil and increasing the infiltration capacity of the area. • Plant saplings would be raised in biodegradable pots and transplanted as such. • The plantation should be done in monsoon season. Pits of 0.45 x 0.45 x 0.45 m will be dug and filled with some soil rich in nutrients.			
		• The compost from local organic waste can be used. • About 1,000 plant sapling shall be planted per hectare. • 5% of total area under plantation shall be reserved for annual flowering beds for aesthetic beauty of the project especially in areas proposed to be developed for staff quarters along the stations. • Maintenance and repair of Landscaping and Tree Plantation work, • Repair of boundary wall or fencing where ever necessary, • To protect the plantation area from grazing and damage by wild animals and villagers cutting grass, • To protect the area from fire, cleaning of dry grass and twigs, etc. from the area and cleaning of inspection paths, • Cleaning of the outer periphery of the plantation area,			

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		• Keeping regular watch over the plantation area during the dry season for risk of fire • Pruning and trimming of plants • All activity complete as per Engineer in charge Detailed guidelines as given in section **9.5.6 of this chapter** shall be followed.			
B.9	**Water Environment- Surface Water** ***Construction*** • Total water requirement for 1000 labour/ camps would be about 135 kilo liters per day. This may generate large pressure on local water resources in the project area. • 108 kilo liters/day of sewage will be generated that may pollute the water bodies. • Oil spill, debris dumped during bridge construction, heavy metals and remains of chemical etc may lead to degradation of water body ***Operation*** • Waste generated due to intense human activities, lead based paints used in bridges, oil spill due to accidents may cause degradation of water bodies during operation stage.	***Construction*** • Silt fencing shall be provided along the river banks/canal up to at least 5m from the bridge edge on both side of the river. • Cofferdam with materials that cannot be brought into suspension by flowing waters shall be used for construction of piers. • Bridge/ culvert construction activity shall be carried out in the non- monsoon season to minimize the impact. • Turbidity curtain/ Piling protector made of impermeable fabric shall be used around piles while removal and construction of cofferdams so that turbidity increase is contained within the curtain area. The curtains shall be removed only after minimum 12 hours of finishing piling and monitoring turbidity which shall not exceed 10 NTU and temperature shall not exceed 30 + 2°C. • Provision of cover of tarpaulins or other material under the bridge to prevent debris, wastes and toxic compounds from entering the stream.	Surface water bodies as mentioned in under the section on drainage and flood.	Contractor	CSC/PIU
		• Piling Protectors can effectively catch paint, moss, growth, and other contaminants in the areas. This keeps pollutants contained to the source and prevents unwanted materials from spreading around • Use of lead-based paints in painting bridge components shall be strictly prohibited.			

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		• Construction debris/oily waste shall not be dumped in the water body in any case. • Immediately after completion of the work, the construction waste, if deposited on river bed shall be removed. • Proper storage of contaminated liquids and disposal after treatment to bring such liquids within prescribed permissible limits. • Turfing with grass or planting with shrubs of all exposed areas as soon as possible to reduce erosion risks. Retaining walls, sausage walls or wire netting shall be used for slope protection as per site condition. • On site fueling area of vehicles and equipments will be located away from water bodies.			
		• Provision of retention areas to contain accidental spills of toxic and hazardous material. • Construction camps shall be located away at about 1.0 km from the water bodies and no discharge shall be allowed to be disposed in to the water bodies. ***Operation*** • Use of lead-based paints in painting bridge components shall be strictly prohibited. • Packaged Sewage treatment Plant/ bio digesters shall be used for staff colony and station offices. • A contingency plan shall be prepared to handle accidental oil spill or muck slide in rivers/ streams. Though this is a very rare phenomenon steps to tackle with it are given below: • *First* step shall be to stop the spill by Turning off nozzles or valves from the leaking container, if it can be done safely. Or use wooden plug, bolt, band or putty on a puncture-type hole.			

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		• *Second,* if it cannot be stopped, a pan or container shall be used to collect the oil.			
		• *Third,* for the oil that has already spread, locally available sorbents shall be used like sand, straw, sawdust, wood chips or dirt from rail/bridge side shall be put on the oil contaminated location and removed after a while, immediately replacing it with a fresh layer of sorbent. This step shall be repeated based on the extent of oil spillage. • All equipment operators and local personnel of the implementing agency shall be trained in immediate response for spill containment and eventual clean-up. Readily available, simple to understand and preferably written in the local language emergency response procedure, including reporting, shall be provided by the contractors • In case the oil spill reaches the river water, Deploy floating booms immediately downstream from the release point to confine the spread. • skimmers or sorbents like sponge or the above mentioned can be used to absorb the oil after it has been confined • Dispose of recovered product not suitable for on-site recycling with the rest of the waste collected during the response efforts as per Hazardous Waste Management and Handling Rules. • In case of failure of protection walls along muck dumping site and sliding of muck into the river bed (bet it seasonal or perenial), immediate action shall be taken to clear the debris from the river bed and repair the protection wall after an expert investigation of the cause of protection wall failure.			

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		• In case of failure of protection walls along muck dumping site and sliding of muck into the river bed (bet it seasonal or perenial), immediate action shall be taken to clear the debris from the river bed and repair the protection wall after an expert investigation of the cause of protection wall failure.			
	Water Environment- Ground Water **Construction** • Tunnel excavation may lead to sudden water inflow or gradual seepage through exposed fractures • Leaching of nitrates, and traces of volatile / semi volatile organic compounds from unexploded/ excess blasting chemicals may be found in ground water • Turbidity may also increase due to loosening of silt, sand, rock particles due to blasting ***Operation*** • No significant impact is anticipated during operation stage on quality • Influx of people may lead to conflict in usage of water resource with local people	**Construction** • Application of erosion and sediment control practices to prevent excessive onsite damage • Apply perimeter control practices to protect the disturbed areas from onsite run-off and to prevent sediment damage to areas below the construction site • Keeping run-off velocities low and try to retain much of the run-off on the site • Proper storage of contaminated liquids and disposal after treatment to bring such liquids within prescribed permissible limits. • Restricting construction activities near water courses as far as practicable during the dry season. • On site fuelling area of vehicles and equipments should be selected away from water bodies and should be on paved platform with roof, connected to oil/ grease separators. In case of water ingress following measures can be taken as per IRC:SP:91-2010 'Guidelines for Road Tunnels' • An emergency dewatering system should be in place to tackle such situation.	Ground water aquifer in villages around the project site- Ghughtiyani Talli,Tapovan, shivpuri, Byasi, Kurn,Chaund,Mesun. Bharpur,Chamrara, Charpoli, Khera Gunth, Bedula,Pundal Gunth,Pokhari, Dhari Gunth,Kambat, Sunari,Kyarth, Charkot,Dalmi, Dhungi, Jamala, Kharet Tala, Panchur,Rumthiyal gaon, Shem, Chham, Diuli, Dhikwal, Gahal, Bhatoli, Chakwali, Pharasu, Khankra, Jirmoli, Tuna, Sumerpur, Ratura, Dungri, Dhartoli, Pokhari, Kalana, Marora, Bhatwari, Dobh laga marora, Kameda chowki, Angodha, Shail, Nag lagasari and Panai apart from other directly affected villages	Contractor	CSC/PIU
	• Continuous seepage of ground water through exposed fissures in tunnel may lead to lowering of	• A detailed study of boring data and geological formations shall be done before start of tunnelling so that groundwater aquifers can be identified. Preventive measures shall be			

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	ground water table.	planned beforehand. In case of seepage, it shall be carefully monitored. • Water flow may be reduced or even entirely stopped by grouting of the wet seems. A wet area covering more than a single seem shall be sealed off by installing suitable section of concrete lining. • In case of steady flow of water from the roof or side of the tunnels, the flow shall be deflected down the sides to sumps by metal shields. • The number of pumps provided at site shall be 50% or at least one more than the assessed requirement, whichever is more. • Gutters and sumps shall be kept clean. Suitable arrangement shall be made to indicate the position of sumps in case of tunnel invert is flooded. Following measures shall be taken in case of blasting: • Drilling logs shall be maintained by the driller and communicated directly to the blaster. The logs shall indicate depths, length of voids, cavities, fault/ week zones.			
		• Where groundwater is encountered. • Explosive products shall be managed on-site so that they are either used in the borehole, returned to the delivery • vehicle, or placed in secure containers for offsite disposal • Spillage around the borehole shall either be placed in the borehole or cleaned up and returned to an appropriate vehicle for handling of placement is secured containers for off site disposal. • Explosives shall be loaded to maintain good continuity in the column load to promote complete detonation			

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		• Explosive products shall be selected that have the appropriate water resistance for the site conditions present to minimise the potential for hazardous effect of the product upon groundwater. • Operation • Installation of a water proofing system between the initial ground support system and the final concrete lining. This will consist of a PVC membrane with protection layers made from geo-textile material • Water collection basins should be put at each end of the tunnel section where drainage water will be collected and passed through a settling chamber to arrest sediments/ debris. • Rainwater harvesting provision shall be made for the villages, in case it is found that their source of water is getting seeped through exposed fissures. If possible the rainwater shall be directed to the ground aquifers not exposed or it shall be stored on above ground tanks for direct community use. Possibilities of treating and supplying the collected seeped water shall also be explored and implemented if feasible.			
		• The gutters shall be maintained cleaned and maintained regularly. Suitable arrangement shall be made to indicate the position of sumps in case of tunnel invert is flooded			
B.10	**Ambient Air and GHG emission** **Construction** • Due to the usage of construction materials like steel, cement, sand and concrete GHG emission is likely to be 27.77 lakh tons CO2. • During preconstruction activities, vegetation will be removed this may lead to change in microclimatic	**Construction** • 90.21 lakh tons of recycled aggregates shall be used for construction that will be available from the excavated tunnel muck. This will reduce the GHG emission to 26.19 lakh ton CO2 i.e. by 5.68% or 1.57 lakh tons. • Use of recycled aggregate will also help in saving quarried aggregates which has an induced impact of dust emission in the quarries.	Construction site and camp	Contractor	CSC/PIU

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	environment. • Vehicle plying in this area for preconstruction activities will release the pollutants like NOX, SOX and CO • Dust emission due to tunnelling and other construction activity	• Construction camps shall be established 500 to 1000 m away from any settlement and shall not be established in forest areas • Acoustic barrier shall be used around the construction camp to trap dust • Workers shall be provided with masks, gloves and other personal protective equipments • Use of high quality fuel and timely up gradation of equipment to match most efficient and environmental friendly technology • Regular maintenance of DG Sets system and stack monitoring at regular intervals to check compliance with applicable standard if DG sets are used. • Mitigation measures such as provision of dust screens in stockyard/construction camps, dust extraction units in the Batching Plant, and water sprays at the construction sites/ stock piles of construction materials /construction camp/hauls roads/quarries shall be made to reduce fugitive dust emissions.			
	Operation Since, the trains would operate on electric power, insignificant impact on air can be envisaged. Moreover the trains would be using hydro generated electricity. 0.0159 tons/year of CO2 is likely to be emitted by the electric trains during operation period.	• All vehicles, equipment and machinery including DG sets used for construction shall be regularly maintained as per CPCB norms. • Regular monitoring of PM10, PM2.5, SOX, NOx etc. as suggest in environmental monitoring plan shall be carried out by the contractor. • To avoid dust emissions likely to result from the spills of construction materials and borrow materials, the vehicles delivering material shall be fitted with tail boards and shall be covered with tarpaulin sheets; **Specific Mitigation Measures** Mitigation measures identified during tunnelling to reduce air pollution: • Excavation at the tunnel portals should be performed within the enclosed work sheds		Contractor	CSC/PIU

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		constructed prior to the commencement of works • Tunnel ventilation air during construction should be treated by passing through particulate filter prior to the exit from work sheds to meet the required standards. **Operation** Though it is anticipated that impact on air environment during operation stage will be negligible still it is recommended to monitor air quality according to the guidelines of National Ambient Air Quality Scheme, 2009. Turfing and plantation in dumping and station areas shall be done to reduce dust emission from unpaved surface. **Specific Mitigation Measures** Mitigation measures identified in operational phase to maintain and monitor air quality includes: • Longitudinal and Transverse Ventilation system to be placed in the tunnels to maintain the desired levels of ambient air quality in the tunnels. • Monitoring of ambient air quality at the ventilation outlets and airflows to be adjusted accordingly to conform to the air discharge norms.			
B.11	**Noise and Vibration** ***Construction*** The resultant maximum/ peak hour noise level can be 145 dB(A) with blasting with exposure time of 7 to 10 minutes. Without blasting the cumulative noise level would be around 124 d(B)A. Noise and vibration may scare away animals/ birds. They may even migrate to change their habitat Vibration may lead to cracking of rock	**Construction** *Quieter & New Equipment* New equipments and those under continuous surveillance shall produce lesser noise. It has to be ensured that the machines are maintained at good conditions. Vehicles and construction equipment's will conform to the standards set by CPCB. *Barrier protection* Construction machineries shall be operated within acoustic barriers (such as plywood with sound absorbing materials) that can attenuate the sound	Construction site/ camp; Surrounding villages may get affected due to vibration -Ghughtiyani Talli,Tapovan, shivpuri, Byasi, Kurn,Chaund,Mesun. Bharpur,Chamrara, Charpoli, Khera Gunth, Bedula,Pundal Gunth,Pokhari, Dhari Gunth,Kambat,	Contractor	CSC/PIU

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	strata and structures around. ***Operation*** -Vibration due to trains may cause cracks in surrounding structures. One hour Leq for tunnel section at a distance of 10 m from the train within the tunnel is likely to be 76 dB (A) for passenger trains and 85 dB(A) for goods train and cumulative would be 85 dB(A).	pressure level upto approximately 10 dB(A) which will lead to reduction of noise to 90 dB(A) at a distance of 200 m from the source. Construction of an acoustic enclosure over the Portals. *Work activity Scheduling* All the construction activities will be carried out during the daytime. Use of plant or machinery will not be allowed during night hour. Careful planning of machinery operation and scheduling of operations will be done to minimize impact on noise environment. The blasting or noise generating activities to be controlled in forest area, particularly during spring season (March-April) to avoid the impact on breeding activities of wild animals. No construction activity shall be carried out at the night time. *Administrative controls* Typical management decisions that reduce worker exposures to noise are: moving workers away from the noise source; restricting access to areas; rotating workers performing noisy tasks; and shutting down noisy equipment when not needed. *Personal Protective Equipment* Workers shall be provided with personal protective equipments like ear plugs to protect themselves from the noise.	Sunari,Kyarth, Charkot,Dalmi, Dhungi, Jamala, Kharet Tala, Panchur,Rumthiyal gaon, Shem, Chham, Diuli, Dhikwal, Gahal, Bhatoli, Chakwali, Pharasu, Khankra, Jirmoli, Tuna, Sumerpur, Ratura, Dungri, Dhartoli, Pokhari, Kalana, Marora, Bhatwari, Dobh laga marora, Kameda chowki, Angodha, Shail, Nag lagasari and Panai apart from other directly affected villages		
	• Cumulative one hour Leq at 30 m from the train would be 65 dB(A) and would attenuate to 50 dB(A), noise limit for silent zone in the day time, at a distance of 240 m from the railway track. • No significant impact anticipated on wildlife due to noise	*Attenuating blasting noise& vibration* Blasting noise is of very short duration and, depending on the distances involved, can reach the peak action level of 140 dB. Noise & vibration shall be reduced by using controlled blasting techniques as mentioned in **point no.B4** and as follows- • Use of adequate cover on any surface explosives including detonators • Keeping people at safe distance • Avoid blasting in adverse weather conditions (temperature inversion)		Contractor	CSC/PIU

Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		• Use of bunds or other acoustic barriers • Note, warning sirens and hooters should not be unduly loud. • Blasting to be done during day time preferably, to minimise disturbance to local people. • Monitoring of noise levels from variable noise sources such as rock drills to ensure Monitoring of noise levels shall be done from variable noise sources such as rock drills to ensure that noise levels are within limits. ***Operation*** • Train operations shall not be scheduled at night so as not to disturb human or animal habitat • Welded tracks shall be used that produces comparatively less vibration than conventional jointed tracks • The tunnels shall be so designed that vibration is minimised for example with the use of floating slab structure or using self-adhering membrane on tracks etc. to reduce vibration and in turn noise by around 7 dB(A). • Noise absorbents shall be used in the inner lining of tunnel to reduce noise otherwise noise reflected by the walls will amplify the noise level inside the tunnels.			
		• Noise and vibration silencers shall be fitted to fans to maintain low noise levels. • In the station areas a buffer of less vulnerable buildings like commercial and railway operations or 10 m wide green belt shall be planned wherever possible between residential and railway tracks • All proposed buildings shall be constructed using noise absorbing materials or barrier blocks that can attenuate the noise level by at least 5 to 10 dB(A) at any point 1.0 m from any inward looking façade as mentioned in National			

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		Building code 2005. The building materials shall have higher Noise Reduction Coefficient (NRC). • The property like houses, shops and other building which would be affected due to vibration impact of blasting would be properly compensated.			
B.12	**Ecology** 7076 trees and undergrowth is likely to be cleared 53.39 ha of revenue forest and 177 ha of reserve forest land is likely to get diverted. This may lead to loss of habitat Elephant corridor is reported between km 3.400 to km 6.800 and is likely to get affected. Habitat of avifaunal species like parrots and dove has been reported between km 6.000 to km 6.900 and is likely to get affected. Noise / vibrations may scare animal away and lead to shifting of their habitat and migratory path. Increased accessibility may lead to poaching	No fragmentation of habitat is likely to happen. • Only those trees shall be cut that directly impinge the construction work after prior permission from the forest department under relevant act. Efforts shall be made to retain trees along the contour in dumping yards and leaving around 10 m space between the rows of trees for compaction of muck. This will help to save the forest and wildlife habitats partially. • The plantation will be carried out as per IRC Code SP: 21:2009 "Guidelines for Landscaping and Tree Plantation". • Plantation audit shall be done to determine survival rate as per guidelines of forest department. • The contractor shall be responsible to prevent labours from illegal felling trees or exploiting the orchards present along the roads. Contractor shall make necessary arrangement of cooking gas/fuel to the workers. • Regular Sprinkling of water to be carried out to suppress dust generation to avoid deposition of dust on leaves of Plants • Compensatory plantation as per the State Government policy should be carried out. Such compensatory afforestation/plantation should be done in consultation with the officials of the Department of Forests. Species composition of compensatory plantation will be decided in consultation with the local communities so as to make usufructs available to the communities	Forest areas along the alignment	Contractor	CSC/PIU

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Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		that will be lost during the process of execution of the project. • The location of construction camps, stone crushing units, batch mixing plants and muck disposal sites is proposed far away from the forest area • The compensation given by the RVNL may be utilized for the plantation in degraded forest of the project area so that forest cover of the area may be enhanced. They shall be protected through fencing for about 8-10 years so that tree may grow till maturity.			
		• Compensating for lost or degraded ecological values in the project area either by restoring or by enhancing similar values elsewhere. The forest division of Dehradun has prepared a habitat management plan that includes lantana removal, grass planting, water hole, provision of water for water hole. Provisions for human-animal (elephant) conflict mitigation includes elephant proof trench, maintenance of trench, solar fencing, maintenance of fencing, watchers for patrolling, thermal camera, camera trap, arms, ammunition, search lights, crackers, sign boards, training, awareness, research, documentation etc. The budget is 28295000 Rs for 10 years. Similar kind of habitat management plan shall be collected from other forest division and followed for the rest of the stretch of the project or as would be suggested by the Forest department while granting forest clearance. Dehradun division plan is given in **Annexure 9.2.** • All the yard and dumping areas are proposed to be fenced. Since the tunnels portals starts and ends in the yards, there would be rare chance of animal getting inside the tunnels which otherwise may cause accidents and death of wild animals. Retaining wall and fencing		Contractor	CSC/PIU

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Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		proposed for D-1,D2 and Rishikesh station will prevent elephant- rail conflict. Provisions as detailed out in **Table 9.2** • Also April-May-June is the breeding season for most of the wild animals and birds. Hence, this season should be avoided for blasting and construction. • The contractor and workers to be well informed about the issues related to poaching and forest resource exploitation and the same will be restrained by doing that. • Natural water resources must be upgraded and maintained in order to provide drinking water locally to wild animals so that they don't have to migrate elsewhere in search of water.			
		• Integrated approach is required with different department like wildlife, forest, agriculture and horticulture in order to increase the tree cover which ultimately provides safe habitat to wild animals. • Awareness camps to be organized to sensitise the workforce against hunting of game-birds or animals. This will be organized in consultation with wildlife officials roping in the services of local NGOs. • Awareness campaign should be organized for the use of solar lamps in order to minimize the load on forest. • Also, awareness camps must be organized among the local people about the importance of forest and wild life and how they can save and protect these resources. • The officials of Rajaji Wildlife sanctuary should be kept informed during the construction phase of the project to avoid any adverse impacts on Elephants.		Contractor	CSC/PIU

Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		• The migration route of animals has been identified in consultation with the officials of Rajaji Wildlife Sanctuary. Special precaution should be taken during construction in order to avoid adverse impacts on Elephants during construction phase in their migratory route sections.			
B.13	**Socio Economy and public health** • Out of total around 94 % of the structures are pucca and 93% are likely to get affected fully • 38% of the project affected persons (PAPs) are dependent on agriculture for their livelihood and would be losing the same • Direct and induced employment opportunities, income & wealth • Increased wealth in the project area; • Increased goods and services; • Improved access, particularly to previously inaccessible areas • Increased demands on services and facilities, social and cultural conflicts, community instability	• The compensation of affected people will be given as per the Railway policy and Land Acquisition and Rehabilitation and Resettlement Act, 2013. • Affected people shall be given preference for employment as per relevant policies. • Resettlement and Rehabilitation plan shall be prepared for the project affected people; • Relocation of community structures shall be done. • Mechanism for keeping the proponent organization accountable for proper rehabilitation of affected persons; • Provision of enhancements sensitive along the alignment • The labors to be restrained from using the local resources that are held in common by indigenous people. • Local labours shall be preferably employed both during construction and operation. • Construction strategies that avoid ecologically or culturally sensitive times of the year. Package and schedule work to maximize the use of local labour or incorporate training useful for project implementation and operation. • Prior notification of blasting to be given in the Corridor of Impact (COI) .During blasting, caution to be provided in the form of notices, sign boards and announcements and & after blasting, monitoring to be done to identify any undue impact on the immediate COI.	Villages like Badhal, Attali, Srinagar, Ranihat, Dewali, Malitha, Siwai, Mawana, Sumerpur, Saud, Narkot, Bhattnagar,Dungri Path, Kodiyala and Lagli	Contractor	CSC/PIU

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Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		• The compensation shall be given to all affected persons whose houses or buildings get affected due to blasting.			
B.14	**Tunnel Safety**	**Fire safety** • All combustible substances like rubbish shall be continuously (at least daily) removed from such areas where flammable liquids are stored, handled or processed. • Containers of flammable liquid shall be tightly capped • Firefighting equipments such as hydrants, hose reels, and extinguishers shall be strategically located • Electrical installations shall be carefully designed and tested regularly to avoid short circuit and ensure emergency cut offs. **Lightning** • During construction adequate lighting shall be provided for labours to be able to work in side. • During operation when the driver would travels into a tunnel his vision has to get adapted to the changing lighting conditions. This adaptation takes some time and is not instantaneous and so such adaptation has to be smooth. For smooth transition suitable designed lighting conditions at the threshold, transit and entry, exit and zones. This can be done by providing luminaires in two different circuits. Alternatively, luminaires that can give variable outputs by use of dimmers can also be used. • Tunnel lighting has to be highly reliable. Tunnel lighting is required whenever trains are about to pass. To save on electricity sensor system can be developed that would switch on the lights when train vibration is felt to be passing through the tunnel.	Tunnel and Adit construction site	Contractor	CSC/PIU

Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		• It is also important to seal the electrical appliances, wire etc within water proof covers. They shall be inspected and maintained regularly. ***Ventilation*** • Natural ventilation as caused by difference in ambient temperature at two portals. Movement of train will also create a piston effect resulting in additional draft. For tunnels less than 500 m (tunnel -6) in length natural ventilation would be enough.			
		Power supply Power supply is proposed to be supplied from grid, however 100 % back up system shall be installed. ***Natural risk*** • 35% of the tunnel portion is likely to get affected by rock fall, 26% by very severe squeezing, 21% by caving and 15% by severe squeezing followed by wedge instability and mild spalling as discussed in Chapter 3. • For efficient and safe tunnelling, supports shall be installed as soon as possible after exposing the face and well within the stand-up time. - Plain or steel fibre reinforced shotcrete is concrete shot over exposed periphery of a tunnel. In case of tunnelling through highly weathered or jointed rocks, immediately after completion of defuming a layer of SFRS shall be placed on the exposed periphery. • Rock bolts can be provided to stitch together layers of jointed and blocky formations. • Provision of ribs made of joists or lattice girders or reinforced concrete lining of appropriate thickness shall be made where exposed periphery of a tunnel is not capable of standing on its own.			

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Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		Ground water and runoff water • Provisions have been discussed under the section on 'Water Environment'.			
		Training of labours & drivers • Labours engaged in construction activity and drivers of train to ply on the project rail alignment shall be trained on all safety procedures to avoid loss of life in case of any emergency. ***Maintenance*** During operations for safety and maintenance, the adit tunnels have been proposed			
B.15	**Labour Health and Safety**	The contractor shall prepare an Environment, Health and safety policy for ensuring proper living facilities, sanitation, water supply, safety, health of the labours in construction and labours camp. **Site selection for labour camp** • The living accommodation and ancillary facilities for labour shall be erected and maintained to standards and scales approved by the resident engineer. • All sites used for camps must be adequately drained. They must not be subject to periodic flooding, nor located within 200 feet of swamps, pools, sink holes or other surface collections of water unless such water surface can be subjected to mosquito control measures. • The camps must be located such that the drainage from and through the camps will not endanger any domestic or public water supply. • All sites must be graded, ditched and rendered free from depressions such that water may get stagnant and become a nuisance. **Water supply** • An adequate and convenient water supply, approved by the appropriate health authority,	Construction site & labour Camps	Contractor	CSC/PIU

Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		must be provided in each camp for drinking, cooking, bathing and laundry purposes. • The drinking water system must be monitored in accordance with the water quality parameters as prescribed by the State Pollution Control Board. The water supply system used for cooking purposes that is drained seasonally must be cleaned, flushed, and disinfected prior to use.			
		• At all construction camps and other workplace, good and sufficient water supply shall be maintained to eliminate chances of waterborne/water-related/water-based diseases to ensure the health and hygiene of the workers. **Solid/ liquid Waste** • Packaged sewage treatment plants (PSTP)/ septic tank connected to soak pits shall be set up for managing sewage or liquid waste. • Organic solid waste generated from kitchen shall be composted at site itself. • The manure can be either supplied to farmers or used on embankments for turfing. • Inorganic or inert waste shall be supplied to the authorized vendors / recyclers. **Toilet Facilities and Hygiene** • There shall be adequate supply of water, close to latrines and urinals. • Toilet facilities adequate for the capacity of the camp must be provided. Each toilet room must be located so as to be accessible, without any individual passing through any sleeping room • A toilet room must be located within 200 feet of the door of each sleeping room. No toilet may be closer than 100 feet to any sleeping room, lunch area or kitchen.			

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Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		• Garbage bins must be provided in the camps and regularly emptied and the garbage disposed off in a hygienic manner to the satisfaction of relevant norms.			
		• Where the toilet rooms are shared, such as in multifamily shelters and in barrack type facilities, separate toilet rooms must be provided for each male and female workers. These rooms must be distinctly marked "for men" and "for women" by signs printed in English and in the native language of the persons occupying the camp, or marked with easily understood pictures or symbols. If the facilities for each sex are in the same building, they must be separated by solid walls or partitions extending from the floor to the roof or ceiling. • The sewage system for the camp must be designed, built and operated to the satisfaction of the concerned local State Govt. Department so that no health hazard occurs and no pollution to the air, ground or adjacent watercourse takes place. Compliance with the relevant legislation must be strictly adhered to. • Sprays shall be used to prevent breeding of mosquitos and thus prevent incident of malaria or dengue. • On completion of the works, all such temporary structures shall be cleared away, all rubbish removed, trenches filled in and effectively sealed off and the outline site left clean and tidy, at the Contractor's expense, to the entire satisfaction of the engineer. **Labour safety & first aid** • No one may be allowed access to the site unless authorized by the engineer or the contractor			

Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		• All fragile slopes should be clearly marked off and personnel informed of the dangers			
		• Adequate precautions will be taken to prevent danger from electrical equipment. No material or any of the sites will be so stacked or placed as to cause danger or inconvenience to any person or the public. All necessary fencing and lights will be provided to protect the public. • All workers shall be provided with protective footwear and protective goggles and other personal protective equipments. Workers, who are engaged in welding works, would be provided with welder's protective eye-shields. The use of any toxic chemical, if any will be strictly in accordance with the manufacturer's instructions. The Supervision consultant will be given at least 6 working days' notice of the proposed use of any toxic chemical. • Injuries might occur during the construction period. It is therefore pertinent to provide first aid facilities for all the construction workers. At construction camps and at all workplaces first aid equipment and nursing staff must be provided. Since many of the workplaces may be far away from regular hospitals, an indoor health unit having one bed facility for every 250 workers needs to be provided. • Adequate transport facilities for moving the injured persons to the nearest hospital must also be provided in ready to move condition • No person may work unaccompanied unless they are on a very gentle slope (less than 30degree slope. All persons must leave the slope together to take refreshments, meals etc			
		• Extreme care must be exercised on slopes during adverse weather conditions as wind, rain; fog and darkness create their own hazards inherent in slope work. The site in-charge must			

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Sl. No.	Impact	Measures of Management Plans	Location	Implementation	Supervision
		assess the conditions with care before allowing access to the slopes. Only in emergencies may persons go on to the slopes in heavy rains or during hours of darkness. In such cases no person shall be allowed to go on the slopes unaccompanied. • All assess equipment, ropes and tackle must be regularly inspected and maintained in good condition. • Where persons could fall over the edge of a slope, temporary guard rails or ropes are to be installed where practicable. All persons exposed to a risk of falling must be provided with a secure and well anchored safety line. Such a rope must be of sufficient strength to provide them with safe arrest in the event of a fall. • Care must be taken to prevent tools and loose objects falling from the slopes. Loose articles should be raised or lowered in a safe manner. They should not be carried up or down ladders unless, in the case of small items, which may be carried in a suitable shoulder bag. • Any scaffolding that is used must be composed of good quality materials. Scaffolding must be of appropriate capacity and correctly erected by competent workmen. • Ladders must be in good condition and adequate for the job. Ladders must extend one meter beyond the landing point and must be on a firm base, correctly pitched and lashed as soon as possible.			
		• If there is any potential hazard to personnel below where the slope work is taking place, adequate temporary warning notices, barriers and "look out" persons need to be employed. Where appropriate standards traffic warning and control measures must be taken.			

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		• Appropriate protective clothing shall be issued, including, where necessary, protective helmets and boots with steal toe caps and slip resistant soles.			
B.16	**Corporate Social Responsibility & Enhancement measures**	• Health centers are proposed at Srinagar, Rishikesh and Karnaprayag stations. It is suggested to provide access to local people as well as part of CSR • As per findings of public consultation at least health centres shall be provided at the station areas of Tilani, Gauchar, Devprayag and Byasi station areas with access to surrounding local villagers. • As per findings of public consultation high school facility shall be provided at Srinagar, Devprayag, Dhari and Tilani station area to cover the surrounding affected villages. Seats can also be reserved for the local students. • Upgradation/ enhancement of infrastructure of existing schools and hospitals in surrounding villages like Khakra. There is an Inter college in Khakra (near D-25) in Rudraprayag district that can be upgraded by providing provision for water supply for drinking and sanitation. The semi- government school near D-35 in Siwai shall be upgraded. • Environmental awareness lectures can be delivered to school or college students • Solar street light shall be provided along the main access roads of villages that are getting affected	Rishikesh, Srinagar, Karnaprayag, Tilani, Gauchar, Devprayag, Byasi, Dhari, Tilani	Contractor	CSC/PIU

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Table 9.6: Environment Management Budget

S. No.	Description	Unit	Quantity	Unit Rate (INR)	Total Amount
A	**Mitigation Measures**				
1	Muck Management Plan Budget	-	-	Refer Annexure 9.3	34649,92389
2	Landscaping (Tree / shrub plantation/ flower bed)	-	-	Refer Annexure 9.3	45,79918
3	Environmental Awareness and training (Training of staffs from RVNL/contractors/ labourers)	Numbers	3	50,000	1,50000
4	Slope protection measures for river banks & non dumping station areas	-		Shall be included in civil cost	
5	Oil/ grease interceptor at refuelling stations, fuel storage locations etc.	Numbers	5 No.	30,000	150000
6	Rainwater harvesting structures for community use in villages whose ground water table is likely to be affected due to exposed fissures through tunnelling	Numbers	As many villages affected	Lump sum	50,00000
7	Silt fencing along rivers banks near proposed bridges and station. Though the total length required is approximately 30106m since it can be reused, cost of only 40% of the length has been considered.	Running meter	12042	29750	358261400
				Sub Total (A)	3,833,133,707
B	**Monitoring and Maintenance**				
8	Monitoring budget for 10 years of construction and 4 years of operation	-	-	Refer Table 7.4 of Chapter 7	483233775
C	**Enhancement Measures and CSR**				
9	Corporate Social Responsibility (New & Upgradation of school/ hospital/ lectures on environment awareness in schools; Solar street lights in villages around the alignment and rest as identified by RVNL)	Numbers	4 new Schools; 4 new health centres; up gradation of 2 schools;	Lump sum	200,00000
				Total (A+B+C)	4,336,367,482
				Contingency (10%)	433636748.2
				Grand Total	4,770,004,230
	Four Hundred seventy seven crore four thousand two hundred and thirty rupees only.				

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अपर महाप्रबंधक (परि0-2/ ऋषिकेश–कर्णप्रयाग प्रोजेक्ट
A G M (Project-2)/Rishikesh-Karanprayag Project
रेल विकास निगम लि./ Rail Vikas Nigam Ltd.
(भारत सरकार का उपक्रम)/ A Govt. of India Enterprise
ऋषिकेश (उत्तराखण्ड)–249201/ Rishikesh (Uttarakhand)-249201

ANNEXURE B-4

SCHEDULE

(See paragraph 2 and 7)

LIST OF PROJECTS OR ACTIVITIES REQUIRING PRIOR ENVIRONMENTAL CLEARANCE

Project or Activity		Category with threshold limit		Conditions if any
		A	B	
1		Mining, extraction of natural resources and power generation (for a specified production capacity)		
(1)	(2)	(3)	(4)	(5)
[v] "1(a)	(i) Mining of minerals.	≥ 50 ha. of mining lease area in respect of non-coal mine lease. > 150 ha of mining lease area in respect of coal mine lease. Asbestos mining irrespective of mining area	<50 ha ≥ 5 ha .of mining lease area in respect of non-coal mine lease. ≤ 150 ha ≥ 5 ha of mining lease area in respect of coal mine lease.	General Condition shall apply Note: Mineral prospecting Is exempted.";
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks / sanctuaries / coral reefs, ecologically sensitive areas.	All projects.		
1(b)	Offshore and onshore oil and gas exploration, development & production	All projects		Note Exploration Surveys (not involving drilling) are exempted provided the concession areas have got previous clearance for physical survey
1(c)	River Valley pojects	(i) ≥ 50 MW hydroelectric power generation; (ii) ≥ 10,000 ha. of culturable command area	(i) < 50 MW ≥ 25 MW hydroelectric power generation; (ii) < 10,000 ha. of culturable command area	[v] "General Condition shall apply. Note: Irrigation projects not involving submergence or inter-state domain shall be appraised by the SEIAA as Category 'B' Projects.";

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

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(1)	(2)	(3)	(4)	(5)
1(d)	Thermal Power Plants	[v] "≥ 500 MW (coal / lignite / naphtha & gas based); ≥ 50 MW (Pet coke diesel and all other fuels including refinery residual oil waste except biomass); ≥ 20 MW (based on biomass or non hazardous municipal waste as fuel).”;	< 500 MW (coal / lignite / naphtha & gas based); <50 MW ≥ 5MW (Pet coke, diesel and all other fuels including refinery residual oil waste except biomass); ≥ 20 MW > 15 MW (based on biomass or non hazardous municipal waste as fuel).”;	[v] “General Condition shall apply. Note: (i) Power plant up to 15 MW, based on biomass and using auxiliary fuel such as coal / lignite / petroleum products up to 15% are exempt. (ii) Power plant up to 15 MW, based on non-hazardous municipal waste and using auxiliary fuel such as coal / lignite / petroleum products up to 15% are exempt. (iii) Power plants using waste heat boiler without any auxiliary fuel are exempt.”;
1(e)	Nuclear power projects and processing of nuclear fuel	All projects		
2		Primary Processing		
2(a)	Coal washeries	≥ 1 million ton/annum throughput of coal	<1million ton/annum throughput of coal	General Condition shall apply (If located within mining area the proposal shall be appraised together with the mining proposal)
2 (b)	Mineral beneficiation	≥ 0.1million ton/annum mineral throughput	< 0.1million ton/annum mineral throughput	General Condition shall apply (Mining proposal with Mineral beneficiation shall be appraised together for grant of clearance)

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ऋषिकेश (उत्तराखण्ड)–249201/ Rishikesh (Uttarakhand)-249201

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

3		Materials Production		
(1)	(2)	(3)	(4)	(5)
3(a)	Metallurgical industries (ferrous & non ferrous)	a)Primary metallurgical industry All projects b) Sponge iron manufacturing ≥ 200TPD c) Secondary metallurgical processing industry All toxic and heavy metal producing units ≥ 20,000 tonnes /annum	Sponge iron manufacturing <200TPD Secondary metallurgical processing industry i.)All toxic and heavy metal producing units <20,000 tonnes /annum ii.)All other non –toxic secondary metallurgical processing industries >5000 tonnes/annum	[v] "General condition shall apply. Note: (i) The recycling industrial units registered under the HSM Rules, are exempted. (ii) In case of secondary metallurgical processing industrial units, those projects involving operation of furnaces only such as induction and electrical arc furnace, submerged arc furnace, and cupola with capacity more than 30,000 tonnes per annum (TPA) would require environmental clearance. (iii) Plant / units other than power plants (given against entry no. 1(d) of the schedule), based on municipal solid waste (non-hazardous) are exempted."
3(b)	Cement plants	≥ 1.0 million tonnes/annum production capacity	<1.0 million tonnes/annum production capacity. All Stand alone grinding units	General Condition shall apply
4		Materials Processing		
(1)	(2)	(3)	(4)	(5)
4(a)	Petroleum refining industry	All projects	-	-
4(b)	Coke oven plants	≥2,50,000 tonnes/annum	<2,50,000 & ≥25,000 tonnes/annum	[v] "General Condition shall apply."
4(c)	Asbestos milling and asbestos based products	All projects	-	-

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(1)	(2)	(3)	(4)	(5)
4(d)	Chlor-alkali industry	≥300 TPD production Capacity or a unit located out side the notified industrial area/ estate	[v] "(i) All projects irrespective of the size, if located in a Notified Industrial Area/ Estate. (ii) <300 tonnes per day (TPD) and located outside a Notified Industrial Area/ Estate."	[v] "General as well as specific condition shall apply. No new Mercury Cell based plants will be permitted and existing units converting to membrane cell technology are exempted from this notification."
4(e)	Soda ash Industry	All projects	-	-
4(f)	Leather/skin/hide processing industry	New projects outside the industrial area or expansion of existing units out side the industrial area	All new or expansion of projects located within a notified industrial area/ estate	[v] "General as well as specific condition shall apply."
5		Manufacturing / Fabrication		
5(a)	Chemical fertilizers	[v] "All projects except Single Super Phosphate."	[v] "Single Super Phosphate."	-
5(b)	Pesticides industry and pesticide specific intermediates (excluding formulations)	All units producing technical grade pesticides	-	-
5(c)	Petro-chemical complexes (industries based on processing of petroleum fractions & natural gas and/or reforming to aromatics)	All projects -	-	-
5(d)	Manmade fibers manufacturing	Rayon	Others	General Condition shall apply
5(e)	Petrochemical based processing (processes other than cracking & reformation and not covered under the complexes)	Located out side the notified industrial area/ estate -	Located in a notified industrial area/ estate	[v] "General as well as specific condition shall apply."

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(1)	(2)	(3)	(4)	(5)
5(f)	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	Located out side the notified industrial area/ estate	Located in a notified industrial area/ estate	[v] "General as well as specific condition shall apply."
5(g)	Distilleries	(i)All Molasses based distilleries (ii) All Cane juice/ non-molasses based distilleries ≥30 KLD	All Cane juice / non-molasses based distilleries – <30 KLD	General Condition shall apply
5(h)	Integrated paint industry	-	All projects	General Condition shall apply
5(i)	Pulp & paper industry excluding manufacturing of paper from waste paper and manufacture of paper from ready pulp with out bleaching	Pulp manufacturing and Pulp& Paper manufacturing industry	Paper manufacturing industry without pulp manufacturing	General Condition shall apply
5(j)	Sugar Industry	-	≥ 5000 tcd cane crushing capacity	General Condition shall apply
5(k)	[v] Omitted			
6		Service Sectors		
6(a)	Oil & gas transportation pipe line (crude and refinery/ petrochemical products), passing through national parks / sanctuaries /coral reefs / ecologically sensitive areas including LNG Terminal	All projects		-

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देहरादून (उत्तराखण्ड)/Dehradun (Uttarakhand)-249201

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
6(b)	**Isolated storage & handling of hazardous chemicals (As per threshold planning quantity indicated in column 3 of schedule 2 & 3 of MSIHC Rules 1989 amended 2000)**	-	**All projects**	**General Condition shall apply**
7		**Physical Infrastructure including Environmental Services**		
7(a)	**Air ports**	**"All projects including airstrips, which are for commercial use."**	-	**"Note: Air strips, which do not involve bunkering/ refueling facility and or Air Traffic Control, are exempted."**
7(b)	All ship breaking yards including ship breaking units	All projects	-	-
7©	**Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes.**	**If at least one industry in the proposed industrial estate falls under the Category A, entire industrial area shall be treated as Category A, irrespective of the area.** **Industrial estates with area greater than 500 ha. and housing at least one Category B industry.**	**Industrial estates housing at least one Category B industry and area <500 ha.** **Industrial estates of area> 500 ha. and not housing any industry belonging to Category A or B.**	**"Genral as well as special conditions shall apply.** **Note:** **1. Industrial Estate of area below 500 ha. and not housing any industry of Category 'A' or 'B' does not require clearance.** **2. If the area is less than 500 ha. but contains building and construction projects > 20,000 Sq. mts. And or development area more than 50 ha it will be treated as activity listed at serial no. 8(a) or 8(b) in the Schedule, as the case may be."**
7(d)	**Common hazardous waste treatment, storage and disposal facilities (TSDFs)**	**All integrated facilities having incineration &landfill or incineration alone**	**All facilities having land fill only**	**General Condition shall apply**

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I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
7(e)	[V] "Ports, harbours, break waters, dredging."	≥ 5 million TPA of cargo handling capacity (excluding fishing harbours)	< 5 million TPA of cargo handling capacity and/or ports/ harbours ≥10,000 TPA of fish handling capacity	[V] "General Condition shall apply. Note: 1. Capital dredging inside and outside the ports or harbors and channels are included; 2. Maintenance dredging is exempt provided it formed part of the original proposal for which Environment Management Plan (EMP) was prepared and environmental clearance obtained."
7(f)	Highways	i) New National High ways; and ii) Expansion of National High ways greater than 30 KM, involving additional right of way greater than 20m involving land acquisition and passing through more than one State.	[V] " i) All State Highway Project; and ii) State Highway expansion projects in hilly terrain (above 1,000 m AMSL) and or ecologically sensitive areas."	General Condition shall apply. Note: Highways include expressways."
7(g)	Aerial ropeways	[V(xvi)(a)] "(i) All projects located at altitude of 1,000 mtr. And above. (ii) All projects located in notified ecologically sensitive areas."	[V(xvi)(b)] "All projects except those covered in column (3)."	General Condition shall apply
7(h)	Common Effluent Treatment Plants (CETPs)		All projects	General Condition shall apply
7(i)	Common Municipal Solid Waste Management Facility (CMSWMF)		All projects	General Condition shall apply
8		Building /Construction projects/Area Development projects and Townships		
8(a)	Building and Construction projects		≥20000 sq.mtrs and <1,50,000 sq.mtrs. of built-up area#	#(built up area for covered construction; in the case of facilities open to the sky, it will be the activity area)
8(b)	Townships and Area Development projects.		Covering an area ≥ 50 ha and or built up area ≥1,50,000 sq .mtrs ++	++All projects under Item 8(b) shall be appraised as Category B1

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

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प्रारूप-47

परियोजना का नाम : उत्तराखण्ड राज्य के जनपद रुद्रप्रयाग के अन्तर्गत प्रस्तावित कुल क्षेत्रफल 1.101 है0 अतिरिक्त मक डंपिंग हेतु रुद्रप्रयाग वन प्रभाग के रुद्रप्रयाग रेंज के ग्राम तिलणी (प्रस्तावित क्षेत्रफल – 0.418 है0) और खांकरा रेंज के ग्राम देजीमाण्डा (प्रस्तावित क्षेत्रफल – 0.683 है0) का उपयोग 126 कि.मी. ऋषिकेश - कर्णप्रयाग नई ब्रॉड गेज रेल लाईन परियोजना निर्माण हेतु वन भूमि का गैर वानिकी कार्यो हेतु वन भूमि हस्तांतरण प्रस्ताव ।

(भारत सरकार, पर्यावरण एवं वन मंत्रालय की पर्यावरणीय स्वीकृती (यदि लागू हो) संलग्न की जाय।)

भारत सरकार के पर्यावरण एवं वन मंत्रालय के नोटिफिकेशन दिनांक 14 सितम्बर, 2006 के अनुसार इस परियोजना हेतु पर्यावरणीय स्वीकृति प्राप्त नही की जानी है।

कंसल्टेंट (वन)
रेल विकास निगम लि०

ओम प्रकाश मालगुडी / OM PRAKASH MALGUDI
उप महाप्रबंधक / Dy. General Manager
रेल विकास निगम लि० / Rail Vikas Nigam Ltd.
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अजीत सिंह यादव / AJIT SINGH YADAV
मुख्य परियोजना प्रबंधक / Chief Project Manager
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Ananya Thapliyal <thapliyalananya15@gmail.com>

Advance Service/ Advance Notice

Ananya Thapliyal <thapliyalananya15@gmail.com> Tue, Oct 15, 2024 at 11:27 AM
To: msukpcb@yahoo.com, roueppcb@gmail.com, ms.ueppcb@gmail.com, ipshita@alcadvocates.com

Dear Sir/ Madam
With reference to O.A. No. 44 of 2024, Jot Singh Bisht v. State of Uttarakhand and others
Kindly find attached along with this email the copy of the Supplementary Affidavit along with the annexures in PDF format filed on behalf of Respondent No. 4, i.e., Rail Vikas Nigam Ltd.
This is for the purpose of Advance Service/ Advance Notice

Kind Regards
Ananya Thapliyal
(Advocate for Respondent No.4)

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Maple Tower, Parx Laureate,
Sector 108, Noida
Mobile No.- 8979055846
Email Id- thapliyalananya15@gmail.com

Supplementary Affidavit by RVNL.pdf