

IN THE NATIONAL GREEN TRIBUNAL, NEW DELHI

INDEX

IN

**Response Affidavit on behalf of
Chief Secretary, Government of Uttarakhand**

in

Original Application No. 51 of 2023

(In response of order dated 09.07.2024)

In the matter of

In re : News item published in The Tribune dated 16.01.2023 titled “Joshimath
disaster a warning for Mussoorie”

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Dated: September 27, 2024



Deepak Bora
Advocate

Counsel for the State of Uttarakhand



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AFFIDAVIT of Kahkashan Naseem, aged about 43 years, D/o Late Shri Abdul Sattar Ansari, Presently posted as Additional Secretary, Department of Environment Conservation and Climate Change, Government of Uttarakhand, Dehradun.

Deponent

I, the above-named deponent does hereby solemnly affirm and state on oath as under: -

1. That the deponent is presently posted as the Additional Secretary, Department of Environment Conservation and Climate Change, Government of Uttarakhand, Dehradun and as such is well acquainted with facts and circumstances of the case and is duly authorized by the competent authority to sign and swear the instant affidavit.
2. That the above noted Original Application was listed for hearing on 09.07.2024, wherein the Hon'ble National Green Tribunal was pleased to issue *inter alia* following directions to the State of Uttarakhand:

“.....



5. *Learned Counsel appearing for the State, from the report, could not point out any action taken at the ground level till now. He has referred to Annexure-A4 which is an action plan for execution of preventive and remedial measures but, from that action plan also, he could not point out any concrete effective action at the ground level. The report dated 19.06.2024 merely refers to the deliberations, meetings, review meetings, general statements, etc. but unless the effective action at the ground level is taken, the problem will not be remediated. In the report, no details of budgetary allocation and no details of comprehensive afforestation plan, steps taken to regulate the carrying capacity in the area have been placed on record. The report indicates certain deficiencies. For illustration, we have noted following lacunae/deficiencies:*

- i. *With regard to sewage management, total installed capacity of 5 STPs is 7.32 MLD but, their utilization capacity is only 3.0 MLD and there exists a gap of 4.32 MLD. The compliance of STPs is matched with the standards notified by MoEF & CC and not with the directed standards by the Tribunal in OA No. 1069/2018 by order dated 30.04.2019.*
- ii. *There is no disclosure on Agencies responsible for carrying out routine geological and geotechnical investigations at the State and Central level for regular monitoring/vigilance. As per the geo-mapping of the region (if done), the pending projects should be reviewed in view of vulnerability of the given areas.*
- iii. *The status of action taken in pursuant to demolition notices served to 19 unsafe buildings has not been disclosed. The status of further survey has also not been disclosed.*
- iv. *No marking of vulnerable sites having cracks, landslide probe areas and chronic landslide probe areas is indicated. How many such sites have been stabilized by way of filling and slope stability, has not been disclosed.*
- v. *Preparation and execution of drainage plan in a time- bound manner has not been disclosed which could remain as one of the attributes for landslide damages to the buildings.*



6. Hence, we require the Chief Secretary, State of Uttarakhand to file an affidavit disclosing the effective action which has been taken at the ground level to remediate the problem till now and the time bound action plan along with the budgetary allocation for the same and the persons accountable for implementation of the same.

.....”

3. That it is respectfully submitted that in compliance of order dated 26.07.2023 and subsequently orders passed by the Hon'ble Tribunal, review of implementation and execution under “Preventive and Remedial Measures” have been carried out at the Chief Secretary level as well as the Principal Secretary level, from time to time and Action Taken Reports have been submitted before the Hon'ble Tribunal for kind consideration. It is pertinent to mention that some suggestive measures are already part of regular activities of concerned department while, some activities are under various stages of execution.
4. That further in compliance of order dated 09.07.2024 passed by the Hon'ble Tribunal, compliance status of each point is as given below:

PREVENTIVE AND REMEDIAL MEASURES:

1. *For tunnel and major civil structures projects like hotel, hospital etc. it is suggested that detailed engineering geological and geotechnical investigations should be done as per BIS Codes and construction permission should only be granted after clearance of the report from the State/Centre appointed Statutory Body.*

Activities Identified:

- i. Issuance of office order for detailed engineering geological and geotechnical investigation as per BIS code.
- ii. Office order regarding procedure for granting permission for major construction.



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Responsible Department/Agency:

Public Works Department (PWD)

Activities Undertaken:

Public Work Department has already made requisite provisions for construction of tunnel, heavy construction, bridges etc. Necessary Office order/Circulars have been issued for compliance for IS:1892-1979 *Code for Practice for subsurface investigation for foundation* and IRS: 78-2014 *Standards specification & Code of Practice for road bridge*, and IRC SP-91-2010 *Guidelines for Road tunnels*.

- Site selection and construction of major civil structures like- tunnel, building, bridge etc. are made only after intensive geological investigations through departmental geologist and as well as external specialized agencies, as and when required. Necessary order in this regard is already issued.
- Geotechnical investigation report is made an integral part of DPR and bridge and other heavy structures are being made prior geo-technical investigation as per IS:1892-1979 *Code of Practice for Subsurface investigation for foundation* and IRC: 78-2014 *Standards Specifications & Code of Practice for road bridges*.
- Tunnel are made in accordance of IRC SP-91-2010 (Code for Practice for Subsurface Investigation for Foundation) guidelines. Standards prescribed by BIS are followed.
- Provisions of National Building code is being followed by the Public Work Department.

Copies of Office Orders is enclosed as **Annexure No. 1**

Time Line: Regular activity.



2. *The MDDA should develop a GIS based Decision Support System (DSS) for the use of the decision makers, planners, managers and administrators, by putting all the data/information (i.e. geological, geomorphological, hydrological, environmental and developed infrastructures) of the Mussoorie Town area in an integrated high resolution (i.e., 1:10,000) common geospatial web-based platform, viz., geoportal.*

Activities Identified:

- i. Development of GIS based Decision Support System (DSS).
- ii. Integration of GIS based Decision Support System (DSS) of Mussoorie Town with high resolution (i.e 1:10000) common geospatial web-based portal.

Responsible Department/Agency:

Mussoorie Dehradun Development Authority (MDDA)

Activities Undertaken:

MDDA has prepared Scope of Work for preparing GIS based Decision Support System (DSS). The Proposed GIS based DSS consists – Slope Analysis, Disaster Prone Area, Geological Report, Forest area and private forest areas, therefore, co-ordination is being made with concerned department. It is proposed to carry out said activities with association of Uttarakhand Space Application Centre (U-SAC).

Time Line: 8 Months

3. *Proper examination of existing building and it may be necessary to strengthen the retrofitting of structures to prevent them from sliding or collapsing. This could involve underpinning or adding reinforcement to the foundations. Technical auditing of multi-story buildings (≥ 3) by*



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experts on annual or biennial basis can be conducted at MDDA level to know about the health of the building.

Activities Identified:

- i. Examination of existing buildings of Mussoorie town.
- ii. Strengthening and retrofitting of identified structures / reinforcement of foundation vulnerable structures of Mussoorie town.
- iii. Technical Auditing of multi-story building (≥ 3 storied) on Mussoorie town on annual and biennial basis.

Responsible Department/Agency:

Mussoorie Dehradun Development Authority (MDDA)

Activities Undertaken:

In order to ascertain proper examination of existing identified unsafe buildings, retrofitting of these structures along with technical auditing of ≥ 3 storied buildings will be carried out. MDDA has engaged Central Building Research Institute (CBRI), Roorkee for the assignment. CBRI has completed the survey works and submitted its report. Further action will be taken as per assessment report of CBRI.

Copies of communication and work order dated 24.05.2024 is being enclosed as **Annexure No. 2.**

Time line: 6 Months.

Budget Allocated: Rs. 21.60 Lakh.

4. *When repairing roads or building structures, it was recommended that the boulders not be removed by digging or blasting the hillsides. In landslide prone areas, stones and boulders should not be removed from the bottom of the hill because this would remove toe support, increasing*



the likelihood of landslides. It is necessary to fill in any cracks that have appeared on the slopes.

Activities Identified:

SOP for repairing of roads and construction of buildings in Mussoorie town, to prevent landslide incidences.

Responsible Department/Agency:

Public Works Department (PWD)

Activities Undertaken:

While repairing of roads and other construction activities, stone/ boulders are not removed, however, necessary strengthening activities are undertaken as per requirement of structure and slope stabilization. No blasting and stabilized rocks/stones are removed from landslide prone areas, however strengthening is done through gabion, breast wall etc. In this regard, Office Circular is already issued and being implemented.

Further, Chronic Landslide zone, Landslide Prone area/Slope Stabilization is done with consultation of Professionals/ Approved institutes like- GSI, IIT, Geo Technical Experts/Geologist.

Landslide Treatment at Km. 25 of NH No. 1 *i.e.* Dehradun - Mussoorie State Highway is being carried out after topographical, geological and geotechnical investigations and duly approved by IIT, Delhi. Following activities are being undertaken:

- Slope correction & Re-profiling, Stabilizing the slide by providing a reinforced shored structure at the toe of hill side.
- Stabilizing the top of hill side using high tensile wire mesh punched with ground anchors and soil nails.
- Sub-surface rains (beneath shored Structure) consisting of Geo-Composite drain tube drainage with mini pipes, non-woven geotextile



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and additional semi perforated PVC pipes used to reduce the pore water pressure.

- Surface drain and Toe drains, intermediate toe drains at the berms and guiding the drain to the nearest sump.
- Catchment drain shall be provided in every bench and at toe of hill/valley slope.
- Rectangular shape relief culvert beneath the road to drain the water from back slope subsurface drain and toe drain.
- Non-woven coir geotextile (as erosion control blanket).

Progress of work along with photographs of landslide treatment is being enclosed as **Annexure No. 3**.

Timeline: December, 2024

Budget Allocated: Rs. 2174.92 Lakh.

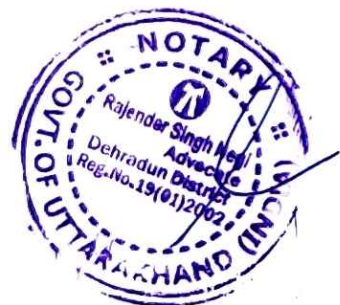
5. *Provision of effective drainage system should be ensured. Due to the lack of proper surface draining system, the rainwater of most of the buildings is being infiltrated into the ground which generates sub-surface flow and accelerates the process of land creeping resulting in damage to buildings and other properties causing economic and environmental disruptions. For safeguarding the buildings and environmental conservation, it is necessary to ensure that the rainwater of each building roof is being drained out properly into the nearest natural drainage line.*

Activities Identified:

Preparation of Drainage Plan of Mussoorie Town that includes indicating discharge of drain water of each building roof to natural drainage system.

Responsible Department/Agency:

Irrigation Department



Activities Undertaken:

- For preparing Master Drainage Plan and Detailed Project Report, Department of Irrigation has engaged M/s Ecomatrix Consultants Pvt. Ltd.
- The objective and scope of the above work is to prepare a Master Drainage Plan and detailed project report for Mussoorie town, Distt. Dehradun, Uttarakhand, which includes:
 - i. To carry out detailed drainage studies of storm water of the Mussoorie Township.
 - ii. To prepare sustainable proper Master Drainage Plan for the Mussoorie township.

Time lines:

- i. Draft Drainage master plan is under progress and to be submitted by **30th September 2024.**
- ii. Final Drainage Master plan will be submitted by **31th October 2024.**
- iii. Draft DPR on Storm water drainage will be submitted by **30th November 2024.**
- iv. Final DPR will be submitted by **31th December 2024.**
- v. Technical assessment of DPR for administrative and financial approval: **Time line: 2 Months.**
- vi. After the administrative and financial approval of the work, the execution related work will be carried out by the Irrigation Department: **Timeline: 24 Months.**

Budget Allocated: Rs. 48.75 Lakh.



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6. *Phytoremediation of degraded slopes can be initiated, that can help to anchor the soil and prevent erosion. Broad leaved native trees can be promoted for stabilizing slopes, especially in the landslide prone areas.*

Activities Identified:

- i. Soil Conservation, afforestation and other soil stabilization activities to be carried out in degraded slopes.
- ii. Identification of areas where slope stabilization in the landslide prone area and phyto-remediation is required.

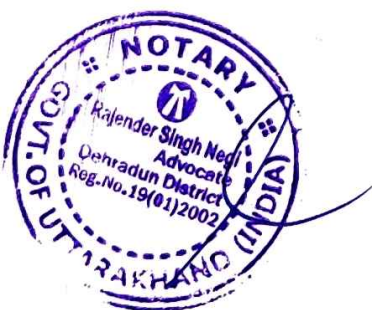
Responsible Department/Agency:

- i. Uttarakhand Landslide Mitigation and Management Center (ULMMC):
- ii. Mussoorie Forest Divisional, Mussoorie:

Activities Undertaken:

- i. **Uttarakhand Landslide Mitigation and Management Center (ULMMC):**

A Joint Committee comprising of representatives of various line departments visited the Mussoorie area on 27.05.2024 for identification of degraded slopes and slope stabilization activities. The Joint Committee reported that in Mussoorie, the predominant litho unit is limestone covered with thin layers of soil, which is generally strong and massive. The slopes are steep, dry, and devoid of natural springs across all nine visited sites. Major deep-seated landslides are not common in the area; instead, minor scarps occur near habitation and along seasonal rivulets, primarily triggered by heavy monsoonal rainwater, as observed at sites Andakhet, Anjuman Estate and Dumping zone of Nagar Palika. Motidhar 5B area falling within Reserved Forest areas, exhibit degradable slopes, while other locations show minor scarps, common in hilly environments. Many sites have dumped materials that may falsely appear as landslips on Google Maps.



Geologically and geomorphologically, Mussoorie differs significantly from Joshimath in terms of climate, absence of springs, rock and soil types, and the absence of major perennial river systems. As a result, issues such as subsidence, road cracks, and creeping observed in Joshimath are not evident at the visited sites in Mussoorie, highlighting the distinct geological settings between the two areas. Nevertheless, considering the active geomorphological processes, the Joint Committee suggested plantation and/or civil works in identified sites based on accessibility and necessity.

The Joint Committee recommended phytoremediation measures including installation of check dams and planting local species / grasses to stabilize the slopes to prevent further degradation. Based on the recommendation of the Joint Committee, Mussoorie Forest Division has started DPR for landslide treatment.

Copy of Joint Inspection report is being enclosed as **Annexure No. 4**

ii. **Mussoorie Forest Divisional, Mussoorie:**

Some places affected by landslides and degraded slopes around Mussoorie have been selected for treatment. An action plan has been prepared as following:

- Creation of Nursery for soil binding Plants (50,000 No.)
- Assisted Natural Regeneration of degraded areas by planting Oak saplings (100 ha.)
- Jute geo textile treatment for Stabilizing degraded slope (5 ha.)
- Two landslide areas of Motidhar Compartment Bo. 5 B of Mussoorie Forest Division have been identified treatment. DPR has been prepared and approval of the same is under consideration.

Copy of DPR for treatment of two landslides is being enclosed as **Annexure No. 5.**

Timeline: 3 Year (F.Y. 2024-25 to 2026-27)

Proposed Budget: Rs. 124.00 Lakh

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7. *Water availability concerning to current demand in summer and winter months should be maintained and proper supply system to be ensured. Recharge / rejuvenation of natural springs should be explored with scientific intervention. Natural spring in the region should be monitored and re-charge activities (proper plantation) can be initiated on proper scientific basis. Springs (act as natural piezometers) are good indicators for any change in the groundwater in the mountainous area. Therefore, there is an urgent need to inventories all springs located in the vicinity/periphery of Mussoorie towns. Their periodic monitoring may be a good tool for detecting any natural calamities events in advance in the mountainous regions.*

Activities Identified:

- i. Inventorization of all springs located in the vicinity / periphery of Mussoorie town.
- ii. Monitoring mechanism of natural springs and rejuvenation activities.
- iii. Estimation of demand and supply of water for Mussoorie town and augmentation plan.

Responsible Department/Agency:

- i. Uttarakhand Peyjal Nigam (UKPJN).
- ii. Mussoorie Forest Division, Mussoorie.

Activities Undertaken:

i. Uttarakhand Peyjal Nigam (UKPJN):

Inventorization and Geo Mapping of existing sources have been carried out by the Uttarakhand Peyjal Nigam. Details of existing water sources are as follows: -

Name of Water Source	Latitude	Longitude
Khanalty water source	30°28'36''	78°02'23''
Under cliff water source	30°28'66''	78°02'45''
Bansi water source	30°27'51''	78°02'45''



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Kandighat water source	30°28'01''	78°01'45''
New Bee water source	30°27'10''	78°03'43''
John Machenan water source	30°27'19''	78°03'40''
Chamar Khadd water source	30°27'22''	78°03'32''
Bhilaru water source	30°28'01''	78°04'03''
Jincy water source	30°28'24''	78°04'18''
Kolty water source	30°28'02''	78°06'33''
Dhobighat water source	30°26'58''	78°04'50''
Company Khadd water source	30°27'29''	78°04'41''
Brookland water source	30°26'45''	78°05'10''
Nalapani water source	30°26'39''	78°05'11''
Pargakhala water source	30°26'25''	78°04'57''
Douglus dale water source	30°26'58''	78°04'59''
Sainti Pani water source	30°28'29''	78°03'10''

- The water demand of Mussoorie has been assessed to 14 MLD in peak tourist season. About 7 MLD water is being supplied through various existing water sources nearby Mussoorie by Uttarakhand Jal Sansthan, while 6-7 MLD water is being taken from Yamuna water supply scheme (Mussoorie Reorganization Water Supply Scheme), which will be increased as per requirement in tourist season.
- In vicinity of Mussoorie, natural streams are being monitored by Uttarakhand Jal Sansthan on regular basis. Catchment and source sustainability work is being carried out by the Forest Department.
- The work of Yamuna water supply scheme (Mussoorie Reorganization Water Supply Scheme) amounting Rs. 144.46 Cr. is being done by Uttarakhand Peyjal Nigam and 90% work has been completed. 100% funds have been released against sanctioned cost upon the scheme.
- Balance work of distribution system and connection shifting work will be completed by March, 2025.



- Balance works of distribution system with in the city was hampered during tourist season / heavy rainfall and no digging works allowed during rainy season by District administration.

Photographs of Mussoorie Reorganization Water Supply Scheme is being enclosed as **Annexure No. 6.**

Time line: March, 2025.

Budget Allocated: Rs. 144.46 Cr.

ii. Mussoorie Forest Division, Mussoorie:

Mussoorie Forest Division, Mussoorie has prepared a proposal for rejuvenation and 11 water sources. During the year 2023-24, first year works of 3 water springs namely – Nayadanda Tok, Kathiyan Tok & Ratnaligad stream has been completed and second year works is to be carried out. Details of works completed in Ist year and proposed for IInd year is as given below:

Detail of Works	Name of water spring	Expenditure incurred in the year 2023-24 (Rs. In Lakh)	Proposed budget for the year 2024-25 (Rs. In Lakh)
Gully plugs construction	Nayadanda Tok	0.775	0.372
RCC Dry Check dam		6.269	3.035
Wire Create check dam		1.190	0.747
Chal-Khal Construction		0.735	0.42
Jalkund constriction		4.420	0
Contour Trench Construction		1.320	0.66
Percolation Tank Construction		6.600	3.30



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			21.309	8.534
Gully plugs construction	Kathiyan Tok		0.837	0.434
RCC Dry Check dam			6.014	2.780
Wire Create check dam			1.494	0.747
Chal-Khal Construction			0.735	0.420
Jalkund constriction			4.420	4.420
Contour Trench Construction			1.056	0.528
Percolation Tank Construction			6.600	3.300
			21.156	12.629
Gully plugs construction	Ratnali Gad		0.527	0.279
RCC Dry Check dam			5.050	2.525
Wire Create check dam			1.494	0.747
Chal-Khal Construction			1.26	0.63
Jalkund constriction			4.42	0
Contour Trench Construction			0.792	0.396
Percolation Tank Construction			8.80	4.40
			22.343	8.977
Total (Rs. In Lakh)			64.808	30.14

Photographs of rejuvenation of water sources related works carried out by Mussoorie Forest Division is being enclosed as **Annexure No. 7**.

Timeline: F.Y. 2024-25

Budget allocated: 30.14 Lakh



- Rejuvenation of following 08 Springs/Nalas are also proposed in the year 2024-25:

- | | | |
|---------------------|----------------------|---------------------|
| i. Chodola Lhala | ii. Gariyala Khala | iii. Radbada Khala |
| iv. Ratnigad, | v. Mahant ki Chowki | vi. Bhawankhala Tok |
| vii. Kheri Ka Khala | viii. Phaidiya Khala | |

Timeline: F.Y. 2024-25

Budget allocated: 107.14 Lakh.

8. *Spring-shed rejuvenation and management activities can be initiated on proper scientific basis for safeguarding and augmentation of the discharge of the springs and subsequently the local streams fed by springs. Since most of the water supply schemes of Mussoorie town are from the local springs/brooklet, incentive-based mechanism (IBM) can be adopted for effective protection and preservation of the springs/brooklet. Beside that recharge zones shall also increase soil moisture content which will help in enriching biodiversity through natural regeneration of trees, shrubs and grasses, etc. and shall increase both flora and fauna in the forest. On the other hand, due to increase in soil moisture content on forest land the incidences of forest fire, which are causing irreparable loss to environment and the entire ecosystem will be controlled as a result of this mitigation measure.*

Activities Identified:

Incentive based Mechanism (IBM) for protection and preservation of the springs/brooklets.

Responsible Department/Agency:

Mussoorie Forest Division, Mussoorie.



Activities Undertaken:

The proposal for treatment of *Bhiladu* and *Jhinsy* water sources has been prepared by the Mussoorie Forest Division. Proposed activities include construction of Gully plugs, RCC Dry Check dams, Wire Create check dams, Contour Trench, Chal-Khal & percolation tanks. The proposal has been approved and necessary funding has been released. The works proposed for the year 2024-25 has been started.

Time line: 3 Years (F.Y. 204-25 to 2026-27)

Budget Allocated: Rs. 28.14 Lakh.

9. *Roof top Rain water harvesting can be promoted to meet the deficit water demand, at least in the peak tourist period.*

Activities Identified:

Provision of building by-law and Office Order / guidelines for rooftop rainwater harvesting.

Responsible Department/Agency:

Mussoorie Dehradun Development Authority (MDDA)

Activities Undertaken:

As per the Uttarakhand Building Construction and Development Byelaws, 2011 (as amended 2015), provision of rain water harvesting is mandatory in construction of more than 125 Sq. meter land covered area. Maps are being approved with necessary provisions of rainwater harvesting. Copy of relevant section of Byelaws is enclosed as **Annexure No. 8**.

MDDA is in process of verification of rainwater harvesting system in built structures in Mussoorie town. So far, 124 built structures have been verified and this process would be completed within next four months.



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Time line: 04 Months.

10. *Open rain water seepage must be stopped through the construction of a pucca drainage system. Water should not be allowed to accumulate in any depression; instead, drains should be built to transport it to safe areas.*

Activities Identified:

- i. Preparation of Drainage Plan of Mussoorie town.
- ii. Provision of drains along the road.

Responsible Department/Agency:

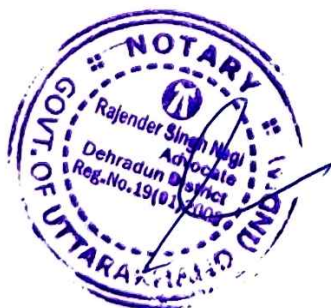
- i. Irrigation Department.
- ii. Public Works Department (PWD)

Activities Undertaken:

- i. **Irrigation Department:** Preparation of Drainage Plan of Mussoorie town: As per Point No. 5.
- ii. **Public Works Department (PWD):** Provision of drains along the road side: Public Works Department has already made provisions of drain along the road and lined drain in residential areas. Necessary Office Circulars are already issued by the Public Works Department.

Time line: Regular Activity.

11. *Proper sewerage network and appropriate treatment facilities should be ensured. The sewage water should not be allowed to percolate or connect with natural ground water. Feasibility of reuse of treated water for secondary uses can be explored.*



Activities Identified:

- i. Existing sewerage network and sewage treatment capacity.
- ii. Proposed sewerage network and sewage treatment capacity.
- iii. Feasibility of reuse of treated water from sewage treatment units.

Responsible Department/Agency:

- i. Uttarakhand Peyjal Nigam (UKPJN)
- ii. Uttarakhand Pollution Control Board (UKPCB)

Activities Undertaken:**i. Uttarakhand Peyjal Nigam (UKPJN):**

- 95% sewerage network of Mussoorie town is completed and only 5% area (3 Km.) of outskirts area of Mussoorie is left. Construction of sewerage network is under progress. Balance Sewerage Network of Mussoorie Town will be completed by July, 2025. **Timeline: July, 2025.**
- Presently 05 STPs of 7.32 MLD capacity, namely at Kulri-0.90 MLD, Landhour North-0.80 MLD, Bhattafall-3.12 MLD, Happy Valley-1.20 MLD and Landhour South-1.30 MLD are functional.
- Capacity utilization is as follows: Kulri - 0.3 MLD; Landhour North-0.4 MLD; Bhatta Fall - 1.5 MLD; Happy Valley - 0.4 MLD and Landhour South-0.4 MLD.
- The present gap between installed capacity and capacity utilization of STP's is due to laying of sewer network/connection is under progress in some areas. Other reason for gap in capacity utilization is that the STPs are constructed for full capacity of design year.
- 05 STPs of 3.25 MLD capacity are under construction. Details of STPs with their progress is as given below:
 - Dhobi Ghat-0.05 MLD. Progress-75%. **Timeline: Feb, 2025.**



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- Library Zone -1.10 MLD. Progress - 70 %. **Timeline: Feb, 2025.**
 - Company Garden - 0.70 MLD. Progress - 50 %. **Timeline: March, 2025.**
 - Arcadia -0.70 MLD. Progress - 10 %. **Timeline: March, 2025.**
 - Camel Back (0.70 MLD) – NOC from Forest Department is awaited.
- The Change in Time line of STP's and laying of balance sewerage network is due to objections from residents for construction of approach road / land issues and heavy rainfall during this rainy season.

Photographs of existing STPs and STPs under construction are being enclosed as **Annexure No. 9.**

Timeline for Sewerage Networking: July, 2025

Timeline for STPs : Feb. 2025 (0.05 MLD & 1.10 MLD)

: March, 2025 (0.70 MLD & 0.70 MLD)

Budget Allocated: Rs. 4000.33 Lakh.

ii. **Uttarakhand Pollution Control Board (UKPCB):**

- Performance monitoring of operational STPs is being carried out by the Uttarakhand Pollution Control Board on monthly basis.

Performance monitoring of STPs from January 2024 to August, 2024 is enclosed as **Annexure No. 10.**

Time line: Regular activity

12. *Construction of new buildings are already restricted. Further, the new /additional construction related extension should be properly monitored. All the building foundations should be mapped by a competent*



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engineering geologist to know about the safe bearing capacity of the foundation and treatment of cut slope. In consultation with the designer, type of foundation (footing, strip, raft) and height of building can be finalized. Then only after this, the map can be submitted to MDDA for approval.

Activities Identified:

Guidelines of building map approval keeping in mind safe bearing capacity of the foundation, treatment of cut slope, type of foundation and height of buildings.

Responsible Department/Agency:

Mussoorie Dehradun Development Authority (MDDA)

Activities Undertaken:

The MDDA is competent authority for approval of maps for new constructions in Mussoorie area. Soil testing report, structural drawing of houses and geological report of site are mandatory requirement for consideration of maps in Mussoorie area. Apart from above, NOC from Geology & Mining Department, Forest Department and Uttarakhand Jal Sansthan is also required for consideration of maps.

Necessary provisions have already been made by MDDA.

Time line: Regular Activity.

13. *The regulations related to waste management should be strictly followed. Dumping sites around water bodies should be strictly restricted to prevent pollution threats on the important sources of drinking water of the city. QR code based Digital Direct Refund System should be implemented for management of plastic waste. IEC activities to be promoted amongst visiting tourist towards solid waste and plastic waste management.*



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Activities Identified:

- i. Compliance of Solid waste Management Rules, 2016 with specific reference to rule-22.
- ii. Restrictions of dumping of solid waste near water bodies.
- iii. Status of QR Code based Digital Direct Refund System.
- iv. IEC activities among tourist towards solid waste and plastic waste management.

Responsible Department/Agency:

- i. Nagar Palika Parishad, Mussoorie (NPP)
- ii. Uttarakhand Pollution Control (UKPCB)

Activities Undertaken:

- i. Nagar Palika Parishad, Mussoorie (NPP):
 - Solid waste is being processed as per Solid Waste Management Rules, 2016. Daily solid waste generation is about 15 - 18 TPD.
 - 70% source segregation at household level is being done. To achieve 100% source segregation, IEC activities are being carried out with association of NGOs.
 - A Material Recover Facility (MRF) of 20 TPD capacity, costing Rs. 190 Lakh is operational. 02 Nos. of Plastic Compactors are also provided.
 - Dry waste like plastic, glass, tin, aluminum etc. is being segregated. Plastic waste is being compacted through Plastic Compactor and being sent for recycling.
 - A Bio-Methanation (CBG) Plant of 8 TPD capacity, costing Rs. 147 Lakh is operational. Electricity is being generated through CBG plant which is being utilize to run the CBG plant for 7-8 hours.



Compliance status submitted by Nagar Palika Parishad, Mussoorie is being enclosed as **Annexure No. 11.**

Time line: Regular Activity

Budget Allocated: Rs. 287.44 Lakh

ii. **Uttarakhand Pollution Control Board (UKPCB):**

- Regulation for Waste Management: The provisions of Solid Waste Management Rules, 2016; Plastic Waste Management Rules, 2016 and notification related to banned SUPs is being implemented.
- SUPs Grievance Portal: CPCB's SUPs grievance portal is being monitored and public complaints are duly redressed. Such activities are ongoing.
- IEC Activities: Under the IEC activities, UKPCB has undertaken awareness campaign at Municipal P.G. College, Mussoorie under "Mission LiFE" program. The Program include- introduction and objectives of "Mission LiFE", Pledge for "Mission LiFE" and exhibition on waste minimization and recycling of various types of waste. Such activities will be continued.

IEC activities carried out by UKPCB is being enclosed as **Annexure No. 12.**

Time line: Regular Activity

14. *Strict measures should be made to promote the usage of biodegradable materials and ban on use of Single Use Plastics (SUPs) items should be strictly enforced.*

Activities Identified:

- i. Special drive for enforcement of banned SUPs items.
- ii. Promotion of bio-degradable alternatives of banned SUP items.



iii. IEC activities.

Responsible Department/Agency:

- i. Nagar Palika Parishad, Mussoorie (NPP)
- ii. Uttarakhand Pollution Control (UKPCB)

Activities Undertaken:

- i. **Nagar Palika Parishad, Mussoorie (NPP):**
 - Conducted regular drives and inspections in all the wards. 330 Challans were made and recovered Rs.1,66,600.00 as penalties.
 - Regular IEC activities and inspection drive is being conducted against banned SUPs.
 - Promotion of biodegradable alternatives of banned SUPs.
- ii. **Uttarakhand Pollution Control Board (UKPCB):**
 - Special drives at market places, Mandis etc. were undertaken against uses of banned Single Use Plastic (SUPs) items at various places of Dehradun. Activity includes, imposition of penalties and seizure of banned plastic items.
 - IEC activities with Schools/Colleges/Hoteliers etc. will be continued.

IEC activities carried out by UKPCB is already enclosed as **Annexure No. 12.**

Time line: Regular Activity

15. *Local people should be involved in the Environmental Conservation programs and awareness/training on landslides, mountain risks, etc. to be initiated.*



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Responsible Department/Agency:

- i. Nagar Palika Parishad, Mussoorie (NPP)
- ii. Uttarakhand Pollution Control (UKPCB)

Activities Undertaken:

- i. **Nagar Palika Parishad, Mussoorie (NPP):**
 - On the occasion of *Harela*, tree plantation was carried out at different location with involvement of local peoples. A total of 515 trees were planted.
 - A total of 11 nos. of awareness activities and meeting with the IEC of Solid waste and plastic waste management

Time line: Regular Activity.

- ii. **Uttarakhand Pollution Control Board (UKPCB):**
IEC Activities: Under the IEC activities, Uttarakhand Pollution Control Board has undertaken environmental awareness related activities in association of grassroot organizations.

Time line: Regular Activity.

16. *Registration of tourists should be done according to carrying capacity of the area, especially the available parking space, guest room availability, etc. Tourist can be charged for visiting the Mussoorie area and the payment can be utilized for managing waste and cleanliness.*

Activities Identified:

- i. Registration of tourists and provision of eco-tax.



Responsible Department/Agency:

- ii. Uttarakhand Tourism:
- iii. Nagar Palika Parishad (NPP), Mussoorie:

Activities Undertaken:**i. Uttarakhand Tourism:**

The Uttarakhand Tourism has developed portal for registration of tourist. Registration will be started soon. Request has been made to Uttarakhand Information & Technology Agency for new Virtual Machine space.

Time line: 2 Months.**ii. Nagar Palika Parishad (NPP), Mussoorie:**

Eco tax is being levied from tourist vehicles entering to Mussoorie by Nagar Palika Parishad, Mussoorie. Collected tax is being used for environment and tourism development activities of Mussoorie.

Time line: Regular Activity.

17. *New construction can be allowed for land owners/local inhabitants as per plan and by-laws of building construction of MDDA and carrying capacity with a specific control on height of the building, slope percentage, drainage and control construction in freeze zone.*

Activities Identified:

Action Plan for permitting /restricting construction activities as per by-laws of building construction, height of building, slope percentage, drainage, and control construction in freeze zone.

Responsible Department/Agency:

Mussoorie Dehradun Development Authority (MDDA)



Activities Undertaken:

In order to restrict the new construction, the Government has earmarked the Mussoorie area into Freeze Zone and non-Freeze Zone. Approval of maps up to 100 Sq. Meter covered area within Freeze zone and 150 Sq. Meter outside the Freeze zone area are being considered with restrictions of 30⁰ slope and 11 Sq. meter of permitted height. Moreover, such approval is being accorded to the permanent resident of Mussoorie only.

Necessary provisions have already been made by MDDA. Guidelines issued by the MDDA on 05.10.2016 is being enclosed as **Annexure No. 13.**

Time line: Regular Activity

18. *At present, the preparation of Master Plan of Mussoorie is in progress. The mitigation and preventive measures can be incorporated in the Master Plan for sustainable development.*

Activities Identified:

Preparation of Master Plan of Mussoorie and incorporation of suggestive preventive and mitigation measures.

Responsible Department/Agency:

Town and Country Planning Department

Activities Undertaken:

The Town & Country Planning Department has engaged M/S Mars Planning & Engineering Services Pvt. Ltd. to prepare Mater Plan for Mussoorie area. Activity includes – i) Development of mobile based App for data collection; ii) Development of GIS based digital portal for



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displaying digital master plan; iii) Tracking mechanism of activities being undertaken; iv) Collection and scanning of Sajra maps; v) Procurement of satellite data at 50 cm or better resolution; vi) Rectification of satellite data, vii) Digitalization of Sajra / Khasra maps; viii) Creation of base map and existing land use map with the spatial attribute collection and vetting of base map etc. The process of creation of base map and existing land use map with the spatial attribute collection and vetting of base map is being carried out. Delineation of notified forest estates is also required for preparation of land use maps. It is expected that Mussoorie Master Plan will be completed by March, 2025.

Status of preparation of Master Plan submitted by Town and Country Planning Department is being enclosed as **Annexure No. 14**.

Timeline: March, 2025

Budget Allocated: 67.00 Lakh.

19. *For the smooth traffic management and to avoid traffic congestion the total number of permissible vehicles may not be exceeded beyond the capacity of parking facility provided by Nagar Palika, Mussoorie, Tourism Department, MDDA, Hotels, Dhramshalas, Gurudwaras etc. The road side parking may be allowed subject to free-flow of traffic as managed by the local police.*

Activities Identified:

Traffic Management Plan of Mussoorie town.

Responsible Department/Agency:

Traffic Police / District Administration



Activities Undertaken:

The assessment of parking facility has been carried out by the Traffic Police. It is estimated that car parking facility for 847 cars is available in hotels located in the Mussoorie, while 33 buses and 740 car parking facility is available at various parking areas developed by Nagar Palika Parishad, MDDA and private parking.

Uttarakhand Traffic Police has worked out Traffic Plan for Mussoorie in order to manage traffic load and avoid congestion. Traffic Police has worked out graded response plan as – Plan ‘A’, Plan ‘B’, Plan ‘C’ and Plan ‘D’. Traffic Plan(s) will be executed as per graded response or situation.

Copy of reply submitted by Additional District Magistrate, Dehradun is being enclosed as **Annexure No. 15**.

Time line: Regular Activity

5. That further with respect to the issues raised by the Hon’ble Tribunal on 09.07.2024, the response of the State is as given below:
 - i. Sewage Treatment Plants (STPs) are designed in view of existing sewer load as well as expected sewer load of coming years. The strengthening of sewerage networking in Mussoorie is under progress and once the networking is completed and households and commercial establishments are connected with sewerage system, capacity utilization of STPs would be increased.
 - ii. Uttarakhand Landslide Mitigation and Management Center (ULMMC) is the technical agency for carrying out geological and geotechnical investigations of the landslide areas in the State.
 - iii. The Mussoorie Dehradun Development Authority (MDDA) has engaged Central Building Research Institute (CBRI), Roorkee for the assessment of unsafe buildings and technical auditing of buildings



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having less than 3 storied. CBRI has submitted its report and further course of action will be taken as per recommendation of CBRI.

- iv. Vulnerable sites for landslide and chronic landslides areas have been identified by the Joint team. Out of identified 9 sites, mitigation measures were recommended in two sites i.e. Motidhar compartment No. 5B. Based on recommendation of Joint Committee, mitigation measures have been proposed by the Mussoorie Forest Division for identified sites.
 - v. Preparation of Master Drainage Plan is under preparation. Survey work is already completed. After Master Drainage Plan, Detailed Project Report will be prepared for execution of Master Drainage Plan. Time line for execution and completion of Master Drainage Plan will be given in DPR.
6. That it is evident from above reply that the State has taken effective steps for implementation and execution of preventive and mitigation measures. Regular review of ongoing project activities ensured timely adherence to stipulated timeline. New projects have also been approved for rejuvenation of water sources, landslide treatment, preparation of master drainage plan for Mussoorie town etc. and necessary funds has been made to executing agencies.
 7. That it is respectfully submitted that various activities costing of Rs. 211.87 Cr. are under execution by various departments, while proposal of Rs. 1.24 Cr. is under consideration. These activities are supplementary to the suggestive "Preventive and Mitigation Measures" and would certainly be helpful in improving the overall environmental quality of the area.
 8. That the deponent is a responsible Government servant having the highest regard for the Hon'ble Tribunal and orders passed by them. The deponent has always made his sincerest efforts to carry out the orders passed by this Hon'ble Tribunal in its letter and spirit and shall continue to do so in the future.


Deponent ✓



Verification:

I, Deepak Dobhal, Advocate, do hereby declare that the person making this affidavit and alleging himself to be Kabkashan Naseem is the same person who is known to me from the papers produced by him before me in this case.

Deepals
Deepak Dobhal

Advocate

Enrol. No. UJK-131/2024

Solemnly affirmed before me on this day of 27th September, 2024 at Dehradun at about 4:50 AM/PM by the deponent who has been identified by the aforesaid person.

I have satisfied myself by examining the deponent who understood the contents of this affidavit.

The person has signed in my presence on the affidavit.

Notary

Sr. No. 5533/24

This affidavit is sworn before me by
Shri. Kabkashan Naseem
who is identified by Shri. Deepak Dobhal, Adv.
at Dehradun on 27/9/24

(Rajender Singh Negi)
Advocate & Notary, Dehradun
27/9/24





Phone & Fax-- 0135-26 0467, 2530431

कार्यालय प्रमुख अभियन्ता एवं विभागाध्यक्ष,
"प्रकीर्ण वर्ग"

लो0नि0वि0, उत्तराखण्ड, देहरादून

Website-<http://pwd.uk.gov.in>

E-Mail-elecpwduk@nic.in

पत्रांक: 1522 / K2 / निविदा / 2017

दिनांक: 29 / 5 / 2017

::: परिपत्र :::

पहाड़ी क्षेत्रों में नव निर्माण के अंतर्गत विभाग में प्रचलित नियम एवं प्राविधानों के अनुरूप जो मार्ग बनाये जाते हैं, उनमें पहाड़ कटान के कारण हिल साइड अस्थिर हो जाती है, जिसे स्थिर होने में लगभग दो-तीन वर्ष लग जाते हैं एवं कुछ स्थानों पर नियमित स्लैप ज़ोन बन जाते हैं जिससे मार्ग सुरक्षा की दृष्टि से काफी असुरक्षित हो जाते हैं। वर्तमान तक राज्य के सीमित संसाधनों में अधिकतम ग्रामों को संयोजकता प्रदान करने के दृष्टिगत गत मार्गों के नव निर्माण कार्यों की DPR में इस संबंध में पर्याप्त प्राविधान नहीं किए जा रहे हैं। गत वर्षों में राज्य के विभिन्न भागों में अतिवृष्टि, बादल फटने आदि आपदा की घटनाओं में अप्रत्याशित वृद्धि हुई है जिसमें सार्वजनिक व व्यक्तिगत परिसंपत्तियों के साथ साथ जनधन की भी भारी हानि हुई है, जिससे जनता के मध्य असुरक्षा की भावना व पलायन की प्रवृत्ति बढ़ी है।

उपरोक्त के दृष्टिगत राष्ट्रीय व अंतर्राष्ट्रीय स्तर पर यह धारणा लगातार बन रही है की मार्ग निर्माण में Less-Energy- Intensive Technology/ Local Material/ Waste Material/ Innovative Material का अधिकतम प्रयोग कर Eco-Friendly कार्य कराये जाये, जिससे कि मार्ग निर्माण के कारण पर्यावरण पर कम से कम प्रतिकूल प्रभाव पड़े व Climate Change के कारण होने वाली आपदाओं में कमी लाई जा सके तथा साथ ही मार्ग निर्माण का कार्य टिकाऊ, सुरक्षित एवं सुविधाजनक बने तथा विकास की प्रक्रिया अनवरत जारी रह सके। अतः भविष्य में मार्ग निर्माण की DPR गठित करते समय निम्न बिंदुओं का समावेश किया जाय-

1. मार्ग निर्माण हेतु मार्ग का ज्यामिती डिजाइन IRC- 52: 2001 के अनुसार किया जाया Alignment में HP Bend की संख्या कम से कम हो। जहाँ HP Bend आवश्यक हो तो स्थल का चयन इस प्रकार किया जाय की मानकों के अनुरूप निर्धारित चं ड्राई के HP Bend का निर्माण किया जा सके।
2. मार्ग का सखण निर्धारण ज्यामिती डिजाइन करते समय पहाड़ का Nomenclature देखते हुए Hill-Side Cutting की Height इस प्रकार निर्धारित की जाय कि पहाड़ कटान के कारण मार्ग का कोई भाग Land Slide Zone में परिवर्तित न हो। Hill-Side Cutting की अधिक Height आने पर मार्ग का कुछ भाग Retaining Wall पर बनते हुये मार्ग को Filling में बनाया जाया Retaining Wall के निर्माण में गुणवत्ता / विशिष्टियों का विशेष ध्यान रखा जाय।
3. अबसर नव-निर्माण के समय में Drainage के कार्यों को आपेक्षित प्राथमिकता नहीं दी जाती है, जबकि किसी मार्ग के स्वायत्तत्व हेतु Proper Drainage एक अतिआवश्यक भाग है। Longitudinal Drain निर्माण को मार्ग निर्माण में cutting कार्य के साथ ही कराया जाय तथा cutting के Job में ही Drain की कटिंग की मात्रा को जोड़कर प्राविधान किया जाय। मार्ग की cutting से प्राप्त Stone/Rock से ही मार्ग की पूरी लंबाई में Dry Stone pitched Lined Drain का प्राविधान किया जाय तथा Drain का कार्य पूर्ण होने पर ही cutting का भुगतान किया जाय।
4. मार्ग के Loose Portion वाले क्षेत्रों में आवश्यक रूप से Slope Protection का कार्य किया जाय। Slope protection हेतु परामत विधियों जैसे Breast Wall, Wire crates आदि के साथ साथ Geo-synthetic उपचार का भी प्राविधान किया जाय। Breast Wall न्यूनतम 1.80 मीटर height की तथा Banded बनाई जाय।

क्रमशः

5. मार्ग निर्माण से निबलने वाले मलबे को valley साइड में गिरने से बचाया जाय तथा अधिकतम मलबे का निस्तारण Muck Disposal स्थल पर किया जाय। Muck Disposal स्थल पर मलबे की स्थिरता हेतु आवश्यक Toe-Wall आदि का प्राविधान DPR में किए जाय, तथा उक्त प्रकार से बनाए गए Muck Disposal स्थलों को Parking Places, Passing Places, यात्री प्रतीक्षालय के रूप में विकसित किया जा सकता है। Muck Disposal स्थल के चयन के समय पर्यावरणीय पहलू को अवश्य ध्यान में रखा जाय। DPR गठित करते समय मार्ग निर्माण से प्राप्त सामग्री के अधिकतम उपयोग करते हुए DPR में प्राविधान किए जाय जिससे एक ओर मार्ग की निर्माण लागत कम होगी वही मलबा निस्तारण में होने वाला व्यय भी कम होगा।
6. IRC-52: 2001 के Clause 15 के अनुसार मार्ग पर प्रति किमी 2-3 Passing Places का प्राविधान अवश्य किया जाय। आबादी वाले भागों में मार्ग को Edge to Edge Paved Shoulder/ Hard Shoulder/ Interlocking Tile आदि के साथ बनाया जाय।
7. मार्ग के वे भाग जिनका प्रयोग Other Department/ Agency को अपनी Utility Cable, Line आदि के लिए प्रयोग किया जाना संभावित हो वहाँ पर मार्ग निर्माण / पुनः निर्माण के समय विशिष्टियों के अनुसार Utility Duct / Hume Pipe Duct का भी प्राविधान किया जाय ताकि मार्ग को बार बार क्षतिग्रस्त होने से बचाया जा सके।
8. Cross Drain हेतु प्राविधान proper design के आधार पर किए जाय। प्रति किमी 6-8 स्कूपर अवश्य बनाये जाय जिन क्षेत्रों में उपयुक्त क्वालिटी के पत्थर उपलब्ध न हो वहाँ पर RR Dry स्कूपर के स्थान पर RCC Slab Scupper/ Precast RCC Slab Scupper/ RCC Box, Culvert/ Hume Pipe आदि का प्राविधान किया जा सकता है। जिन स्थानों पर पानी के साथ अन्य material जैसे मलबा आदि के आने से scupper के बार बार चोक होने की संभावना हो वहाँ पर 1.5 मीटर Span Culvert बनाई जा सकती है, जिसकी drawing IRC - SP-20 में उपलब्ध है। Scupper के Down stream में पानी के बहाव से होने वाले कटाव को रोकने हेतु आवश्यक प्राविधान किए जाय तथा स्थल की आवश्यकतानुसार कुछ दूरी तक check wall भी बनाई जाय।
9. सामान्यतः मार्गों पर Causeway न बनाकर Culvert बनायी जाय। अपरिहार्य स्थितियों में Causeway का प्राविधान अधीक्षण अभियंता से अनुमोदन प्राप्त कर ही लिया जाय। Causeway Minimum PCC Grade M-30 में ही बनाए जाय।
10. जिन भागों में हिल साइड से excessive seepage होने की संभावना हो उन स्थानों पर drainage layer/ Filtration layer आदि का प्राविधान रखा जाय।
11. मार्ग पर सुरक्षित व सुविधाजनक यातायात हेतु Road Safety व Road Furniture से संबन्धित प्राविधान आवश्यक रूप से किए जाय तथा उक्त हेतु प्राविधानित धनराशि का प्रयोग किसी अन्य मद में न किया जाय। पर्वतीय मार्गों पर दुर्घटनाओं को देखते हुए आवश्यक है कि मार्ग में अंधे मोड़ों, बाहरी मोड़ों आदि स्थानों पर Parapet / Crash Barrier का प्राविधान अवश्य किया जाय। Parapet बनाने के पश्चात उनकी curing पर विशेष ध्यान रखा जाय।
12. मार्ग में यथासंभव Local Material का प्रयोग Sub-Grade/ Sub-Base तथा Base Course बनाने में कर लागत में मितव्ययता लायी जाय। इस हेतु IRC में दिये गए प्राविधानों के अनुसार stabilizer का प्रयोग किया जा सकता है।
13. कार्यस्थल की स्थिति के अनुरूप Cold Mix एवं Warm Mix Technology का प्रयोग अवश्य किया जाय। साथ ही Innovative Material का यथासंभव उपयोग किया जाय।
उक्त समस्त कार्यों को कराने के लिए स्पष्ट है कि DPR की लागत प्रति किमी सामान्य दर से अधिक आ सकती है लेकिन वर्तमान परिवेश में सुरक्षा एवं पर्यावरणीय कारकों को देखते हुए उपरोक्त कार्य कराने अपरिहार्य हो गए हैं, ताकि जो भी मार्ग बने वह Sustainable, सुरक्षित व पर्यावरण के अनुकूल हो तथा इसके दूरगामी परिणाम क्षेत्र तथा प्रदेश को मिल सकें।

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित:

1. मुख्य अभियन्ता, मुख्यालय, विभागाध्यक्ष कार्यालय, लो० नि० वि० देहरादून।
2. समस्त मुख्य अभियन्ता, क्षेत्रीय कार्यालय/राष्ट्रीय राजमार्ग/ए०डी०वी०/वर्ल्ड बैंक/पी०एम०जी०एरा०वार्ड, लो० नि० वि०, उत्तराखण्ड देहरादून/ पौड़ी/टिहरी, इल्हासी/पिथौरागढ़/अल्मोड़ा को इस आशय से प्रेषित कि अपने अधीनस्थ कार्यालयों को भी अपने स्तर से अवगत करावें।
3. चरिस्ट स्टाफ ऑफिसर 'I, II' विभागाध्यक्ष कार्यालय, लो० नि० वि० देहरादून।
4. समस्त तकनीकी स्टाफ, विभागाध्यक्ष कार्यालय, लोक निर्माण विभाग, उत्तराखण्ड, देहरादून।
5. अधिशासी अभियन्ता, टी० टी० सी, वित्त विभाग, उत्तराखण्ड शासन।
6. अधिशासी अभियन्ता, IT को विभागीय वेबसाइट पर अपलोड करने हेतु
7. प्राविधिक वर्ग, विभागाध्यक्ष कार्यालय, लो० नि० वि० देहरादून।

प्रमुख अभियन्ता
लो० नि० वि०



516

सत्यन क-२

Phone & Fax:- 0135-2520497, 2520431

कार्यालय प्रमुख अभियन्ता एवं विभागाध्यक्ष
उत्तराखण्ड लोक निर्माण विभाग
'प्रकीर्ण तर्ग', देहरादून।



ciepwwduk@nic.in

Website-http://pwd.uk.gov.in

E-Mail-

पत्रांक- 372/सर्कुलर 09सा0प्र0/2019

दिनांक- 29/05/2019

: कार्यालय आदेश:

प्रकरण संज्ञान में आये है कि महत्वपूर्ण निर्माण कार्य की डी0पी0आर0 बनाने से पूर्व भू तकनीकी जांच (Geotechnical investigation) नहीं करायी जा रही है। Geotechnical investigation Report, डी0पी0आर0 का एक महत्वपूर्ण अंग है। इसके अभाव में कार्य करने पर स्ट्रक्चर के सुरक्षित एवं मितव्ययी न रहने की सम्भावना बनी रहती है। भविष्य में किसी भी सेतु एवं हेवी स्ट्रक्चर के निर्माण से पूर्व भू तकनीकी जांच, IS:1892-1979 "Code of practice for subsurface investigation for foundations" एवं IRC:78-2014 "Standard specification & code of practice for road bridges" के आधार पर करवाना सुनिश्चित किया जाय, एवं Geotechnical investigation Report को डी0पी0आर0 का पार्ट बनाया जाय। भू तकनीकी जांच के Bore Logs, investigation रिपोर्ट्स, फोटोग्राफ्स सहायक अभियन्ता सत्यापित करेंगे तथा Bore Logs के samples के लिए सहायक अभियन्ता पूर्ण रूप से उत्तरदायी होंगे। इसी आधार पर स्ट्रक्चर की फाउंडेशन की डिजाइन की जाय।

ह०

(हरि ओम शर्मा)

प्रभारी प्रमुख अभियन्ता
उत्तराखण्ड लो0नि0वि0

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित:-

1. अपर मुख्य सचिव लो0नि0वि0, उत्तराखण्ड शासन।
2. मुख्य अभियन्ता (मुख्यालय), विभागाध्यक्ष कार्यालय, लो0नि0वि0, देहरादून।
3. क्षेत्रीय मुख्य अभियन्ता, लो0नि0वि0, अल्मोड़ा/हल्द्वानी/पौड़ी/टिहरी/पिथौरागढ़/ देहरादून।
4. मुख्य अभियन्ता, रा0मा0 एवं सेतु/ए0डी0बी0/वर्ल्ड बैंक/पी0एम0जी0एस0वाई0, लो0नि0वि0, देहरादून/हल्द्वानी/अल्मोड़ा।
5. समस्त अधीक्षण अभियन्ता, सिविल एवं वि0/यां0, लो0नि0वि0, को अपने स्तर से अधिशासी अभियन्ताओं को उपलब्ध कराना सुनिश्चित करें।
6. वरिष्ठ स्टाफ ऑफिसर-प्रथम/द्वितीय एवं समस्त अधिशासी अभियन्ता विभागाध्यक्ष कार्यालय, लो0नि0वि0, देहरादून।
7. अधिशासी अभियन्ता (आई0टी0), विभागाध्यक्ष कार्यालय, लो0नि0वि0, देहरादून को विभागीय वेबसाइट पर अपलोड करने हेतु।
8. कनिष्ठ अभियन्ता (प्रा0), विभागाध्यक्ष कार्यालय, लो0नि0वि0, देहरादून।
9. गार्ड फ़ाइल हेतु।

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29.5.19

29/5/19
प्रभारी प्रमुख अभियन्ता

उत्तराखण्ड लो0नि0वि0

29.5.19

**GUIDELINES
FOR
ROAD TUNNELS**

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3 GEO-TECHNICAL INVESTIGATIONS

3.1 Site specific geological conditions along a tunnel alignment play a prominent role in influencing major decisions regarding planning, designing and construction e.g.

- Alignment and portal locations
- Shape of the tunnel
- Tunnel supporting systems
- Minimum distance to be kept between two tunnels
- Methodology of construction of tunnel including risk assessment
- Construction method and treatment of open cut/slopes

The starting point of all these designs is knowledge in respect of the behavior of the Tunnelling media-likely to be met with during Tunnelling. It is therefore very important that appropriate geo-technical investigations are conducted early in the planning process. The objective of geological investigations is to understand the history, topography, geology, environmental setting and the engineering properties of the underlying strata. The geotechnical information regarding nature of ground, groundwater conditions, engineering and other scientific parameters is essential for anticipating ground behaviour which is useful to select tunnel shape, size, excavation method & the support system, and other essential parameters for a cost and time effective tunnel design.

3.2 Relevant Strata

For designers and constructors of tunnels, the ground through which the tunnels pass is the construction medium. It is therefore necessary to have fairly realistic geotechnical assessment of the construction media and its environment. The most important consideration is the condition of the ground mass just above crown of the tunnel (generally for a height of 2 times width of tunnel) and at the level of the tunnel

3.3 Geo-technical Investigations

The methods available for carrying out geo-technical investigations are

- Collection of available data regarding Regional and Local Geology of the area
- Detailed mapping of surface geology of the tunnel area
- Geophysical studies along the alignment of the tunnel
- Exploratory boring and/or Drifting: In-situ testing

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Besides the above, additional data shall be collected during actual construction as given in para 3.4.

3.3.1 *Collection of available data regarding regional and local geology of the area*

Data regarding General Geology of the project area shall be collected from

- a) Site reconnaissance survey to collect information on geological features.
- b) Geological Survey of India and similar organizations of the State Government,
- c) Nearby Engineering Institutions and Engineering Projects in the vicinity.

The data collected shall include general idea of in-situ stresses in the ground formations of the region, which is required for assessment of rock mass quality.

3.3.2 *Detailed mapping of surface geology of the tunnel area*

After conceptual alternative alignments of the tunnel have been set out on the ground, geological mapping of the area should be carried out to observe and to make note of geological features such as type of strata, existence of outcrops, dip and strike of strata, discontinuities, folds, faults, ground water regime etc. Taking into account general geology of the area and the data collected during the study of surface geology, a preliminary geological map shall be prepared and preliminary assessment of geo-technical conditions that are likely to be met with, along the alternatives shall be made. These studies along with other preliminary studies would help in arriving at the technical feasibility of each alternative, rough cost of each alternative and selection of preferred alignment for further detailed studies.

3.3.3 *Exploratory boring and drifting*

3.3.3.1 *Determination of locations of bore holes*

Locations of exploratory bore holes shall be decided considering salient features of the ground profile above the tunnel, preliminarily assessed geological conditions and the likely location of the portals conceived on the basis of the preliminary geological map. If the profile of the ground above the tunnel is accessible and formations are likely to be fairly uniform the bores shall be generally taken at an interval of about 200 m. If the formations are likely to be heterogeneous the borehole interval shall be reduced

to 100 m. If any specific geological feature is encountered additional bores shall be taken. If the profile of the ground above the tunnel is not easily accessible nearest accessible location shall be chosen. In any case, even for a shorter length tunnel, minimum three bores shall be taken, one at each portal location and third in the middle.

3.3.3.2 *Geo-technical assessment by exploratory boring*

For realistic geo-technical assessment of the ground, exploratory bores shall be drilled to a depth of about 5 m below the expected level of invert of the tunnel. The cores shall be collected from the relevant strata as defined above in para 3.2 above. Boring shall be carried out using at least NX size coring bits and using double-tube core barrel in normal situations and triple-tube core barrels in weak rocks, fault zones, shear zones, crush zones, folded rocks etc. Use of triple tube core barrel helps preventing mechanical breakage of rock cores due to rough handling.

3.3.3.3 *Observations and tests to be made during boring operations*

During boring operations, following observations shall be made and tests shall be carried out:

- 1) Rate of penetration in each 1.5 m drill run:
The rate of penetration gives a broad idea about toughness of the strata.
- 2) Locations, if any, where rate of penetration changes suddenly:
Sudden change in the rate of penetration indicates change in the type of strata. If the drill string suddenly drops, it will indicate presence of hollow joint/cavity or joint with very soft matrix.
- 3) Quantum of drilling water:
Flow of drilling water going into the drill hole and water flushing out of a drill hole shall be monitored continuously. Sudden loss of drilling water indicates presence of open dry joints or fractured zone. Increase in the rate of drilling water flushing out of a drill hole indicates intersection of groundwater table. Sudden large increase in the rate of drilling water flushing out of a drill hole would indicate artesian conditions.
- 4) Colour of drill water/sludge:
Observing carefully the colour of drill water/sludge coming out from the borehole is important as it gives idea about the type of strata in which bore is passing.

5) Permeability:

Permeability of rock strata is the amount of flow of water through rock mass when it is saturated. Generally one permeability test shall be carried out in each 6 m tier. However, one test shall be carried out in each 3 m length of the borehole in the relevant strata, using Double packers and using falling and constant head methods

The drilling data shall be recorded in the proforma given in the **Annex-C**.

3.3.3.4 *Preservation of cores samples*

As soon as core is removed from the core barrel all pieces of core must be immediately numbered serially, their depths and serial numbers painted on them and their lower ends marked so as to ensure that all pieces are kept in correct order exactly representing the depth from which they have been obtained. Lengths of all pieces of core shall be measured and recorded in the daily drill report. Cores shall be immediately placed in core boxes made according to standard specification, and all the necessary information such as the name of the project, location of drill hole, drill meterage, drill hole number, etc. shall be painted on the box. The cores of some soft and weak rocks disintegrate on exposure to atmosphere. Cores of such rocks when raised to the surface should be covered with a thin layer of wax by immediately immersing it in melted wax for preventing its exposure to atmosphere. Such waxed core remains intact indefinitely and the rocks in their true form as they occur in-situ are seen in the core and not in the misleading disintegrated form. The core boxes shall be preserved till three years after completion of the tunnel and after it is put to use.

3.3.3.5 *Observations to be made on the core samples*

Following observations shall be made by an expert geologist:

1) Lithology

Lithology will be useful to study the origin, formation, mineral composition and classification of rocks. Study of core samples would enable identification of nature and classification of the formations.

2) Nature of joints in the formations

A core would normally break only along pre existing divisional planes. However, due to vibrations during drilling, particularly with a defective machine or defective operation, core may also break even at places where joints do not exist. It is necessary to distinguish between fractures

due to jointing and mechanical fractures caused by faulty drilling, by examining the fracture surfaces. Inspection of the core samples would also enable identification of location, orientation, spacing, thickness and physical condition of joints, their tightness or openness and roughness and alteration of joints in the formations and type of infill material.

3) Core recovery and RQD

A core recovery is the percentage of total length of cores obtained as compared to the total section cored including lost cored sections i.e. core run. The RQD – Rock Quality Designation is the percentage of cumulative length of pieces of core longer than 10 cm obtained from a total section cored i.e. core run. RQD is normally assessed and recorded for each meter of the core run. These observations help in assessment of the strata in respect of jointing and other disturbances.

3.3.3.6 Tests on core samples

Following tests shall be carried out in a competent laboratory. At least five samples of each lithological category should be tested. If the lithology indicates that the relevant ground mass is only of one category, at least a total of ten samples from different levels shall be tested.

- Unconfined compressive strength and hardness
- Natural and dry density and specific gravity
- Rate of water absorption and porosity
- Young's modulus of elasticity
- Poisson's ratio
- Tri-axial strength (for structurally disturbed rock formation)
- Petrography – Hand and microscopic petrography
- Tensile strength – (in completely geologically disturbed area)

3.3.3.7 Geo-technical assessment by excavation of exploratory drifts

Sometimes, when a tunnel passes below a high mountain, boring of exploratory holes to cover the relevant strata becomes impracticable due to the excessive depth of boreholes. In such a situation as also to gain information in respect of the hidden geological features along the alignment, geo-technical assessment is carried out by excavation of tunnels of small cross-section called exploratory drifts. These drifts give an idea of the nature of strata likely to be met with.

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Such information collected from drifts, which are at shallow depths from the ground surface, shall be used only by a Tunnelling expert in association with an experienced geologist since the behavior of rock masses under small cover in drifts is significantly different than the behavior of the similar rock masses at higher depths actually encountered during tunnelling.

3.3.4 *Geo-technical assessment by geophysical methods*

Initial geophysical assessment followed by a quantitative geological investigation programme often provides reliable information in a short time.

3.3.4.1 Exploratory boring gives detailed information of the geological formations at and around the location of the boreholes. However, when a tunnel passes below a high mountain, boring of exploratory holes to cover the relevant strata becomes impracticable due to necessary excessive depth of boreholes. In such a situation as also to gain information in respect of the hidden geological features along the tunnel alignment, geophysical methods should be resorted to. Geophysical surveys enable in-situ determination of engineering properties of the strata such as profile of the strata, hidden faults, discontinuities and voids, groundwater, elastic moduli and density etc. Most often, these techniques do not directly measure the parameters and the same have to be developed from the known geological data and the measured geophysical contrast. Geophysical methods give qualitative assessment of the engineering properties and do not provide quantitative results as are available from exploratory boring.

3.3.4.2 *Some of the methods of geophysical studies are*

- Seismic Methods
- Electrical Resistivity

3.3.4.3 Seismic methods are the most commonly used methods of geophysical surveys for engineering investigations. These methods are mainly based on application of analogies of optical laws to seismic wave propagation. Seismic refraction and reflection provide engineers and geologists with the most basic geological data via simple procedures with common equipment. Seismic methods of subsurface evaluation involve the generation of pulses of energy, usually at the ground surface, consisting of compression, shear and surface waves that propagate through the ground and are either reflected back toward the surface, or are refracted at and travel along lithological boundaries. The wave energy which returns to the surface is picked up by geophones placed at the ground surface. The geophones convert the wave

energy to an electronic signal which is recorded on a seismograph. Refracted waves travel along the interface of lower density material overlying higher density material, for example sediment overlying bedrock. The speed of wave propagation of refracted signals changes along the path, traveling at relatively slow speeds in the sediment, at higher speeds along the bedrock interface, and slow speeds again as they return to the surface. Refracted waves can only be detected at the surface for situations in which higher velocity material underlies low velocity material. Reflected waves travel downward until they meet an interface between layers of differing density. The speed of wave propagation is constant at the speed of the overlying material. In the case of sediment overlying bedrock, the wave will travel at the slower sediment speed. Surface waves are the portion of the seismic energy pulse which travels along the surface of the ground directly to the geophone.

3.3.4.4 Electrical resistivity method generally enables broad mapping of rock surfaces below, up to a depths of about 30 m. Electrical resistivity is a method for assessment of soil and rock mass and vertical and horizontal discontinuities therein, in by observing its resistivity and discontinuities in their electrical properties.

Distribution of electrical potential in the ground around a current-carrying electrode depends on the electrical resistivities and disposition of the surrounding soils and rocks. Grains of soil and rock are essentially nonconductive except those of metallic ores. Therefore the resistivity of soils or rocks primarily depends on the amount of pore water and the arrangements of the pores. Materials with different lithology therefore have different resistivity. Igneous rocks have the highest resistivities while sedimentary rocks tend to be most conductive because of their high water content and metamorphic rocks fall in-between them. Interpretation is carried out by qualitative comparison between the resistivity measurements observed in the field and the hypothetical models or on the basis of empirical methods. The Electrical resistivity method makes use of this principle.

The usual practice in the field is to apply a direct current or alternating current of low frequency through two electrodes implanted in the ground and to measure the difference of potential between two additional electrodes that do not carry current, also implanted in the ground, a few meters away. The difference in the electrical potential i.e. resistivity of the ground between the two types of electrodes as above, is measured.

3.4 Corroboration of Data During Construction

Data collected during planning stage shall be got corroborated by following additional investigations during actual construction. This will help in revalidating the initial design or for making any course corrections required.

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3.4.1 *Advance probing hole*

Horizontal bore holes of suitable length shall be drilled at regular intervals at tunnel faces to gather geological information about strata ahead of the face. This information shall be used to plan further Tunnelling operations and changes in design, if required. Adequate advance precautions shall be taken in case large ingress of water is encountered from the probe hole.

3.4.2 Seismic method as described in para **3.3.4.3** above can also be used for advance probing by detonating very small explosive charges on the tunnel face and mapping the reflected/refracted waves to get some idea of the strata ahead.

3.4.3 *Tunnel instrumentation*

In-situ stress measurement is useful in long mountain tunnels. Adequate tunnel instrumentation program shall be adopted for observation and monitoring the behavior of excavated faces/surroundings, especially the state of in-situ stresses. The purpose of instrumentation is to confirm that actual behavior of the Tunnelling media is similar to the one assumed in design. Any variation from the design assumptions shall be considered for correction in design during construction and for improving safety measures. This aspect becomes more important in poor rock masses. The information on Instrumentation is given in **Annex-D**.

3.5 **Assessment of RMR & Q**

Study of cores and data collected from surface and subsurface observations shall be used to evaluate parameters required for the assessment of RMR and Q described in details in the section titled 'Structural Design'. These indices are useful for assessing the characteristics of various lithological units. These two parameters are also used for assessing method of excavation, support requirements, anticipating tunnel deformations and construction problems.

The collected geological information should be used to prepare a geological L-section of the tunnel. This L-section must cover the lithological units, geological discontinuities with strike and dip direction along the tunnel axis.

3.6 **Drawings to be prepared**

Lithological Section i.e. longitudinal section along the alignment of the tunnel and its approach/open cuts showing location of the boreholes shall be prepared, incorporating therein all the relevant data collected during the geo-technical investigations. The lithological section would give an idea about the spread of different formations

Annex-C
(Clause 3.3.3.3)

CORE LOG - 1

Client :

Drill Hole No. 1

Date:

Site:

Operator Name:

Top R.L. - __m__

Diameter of bore (mm) :-

100 & Nx.

Core Drill Run (m)	Serial No of core pieces	Length of Core Removed (cm)	Piece No	Length of Piece(cm)	Nature of Fracture at Lower End of Piece	Angle of joint with Vertical	Joint at Bottom of core Piece(m)	Core Recovery(%)	Rock Quality Designation (%)	Petrographic Description	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
0.00 to 2.00										OVER BURDEN	
2.00 to 3.50	1 to 4	21	1 2 3 4	2 5 5 9	J J J J	H H H H	*	42	NIL	All joints are stained with iron oxide and calcium carbonate	Total drill water loss throughout the length of the bore drilled.
3.50 to 5.00	5 to 15	99	5 6 7 8 9 10 11 12 13 14 15	29 13 11 2 2 6 10 6 10 6 4	J J J J J J J J J J J	V H 45° V V V V V V V		66	49	From P.No. 1 to 96 porphyritic basalt with green infillings	* R.L. to be calculated & Filled
5.00 to 6.50	16 to 30	102	16 17 18 19 20 21	10 6 5 3 7 3	J J J J J J	H H 80° H 45° V		68	23		

Note: The information filled above is typical for guidance J - Joint, V - Vertical joint, H - Horizontal joint.



सी.एस.आई.आर. - केंद्रीय भवन अनुसंधान संस्थान
रुड़की 247 667 (भारत)
CSIR-Central Building Research Institute
Roorkee 247 667 (India)

Ashish Kapoor
Scientist
Structural Engineering Group

Ph. 91 1332 283217
Mobile 91-9780110583
E-mail ashishkapoor@cbri.res.in

BY E-MAIL

No.SE/AK/05/2024/1143

Date: 06/05/2024

To
Executive Engineer,
Mussoorie Dehradun Development Authority,
Dehradun,

Subject: Building safety assessment of 20 Distressed Buildings in Mussoorie, Dehradun.

Ref: Your letter No. 134/2024 Dt.26/04/2024 requested CSIR-CBRI for Consultancy services for safety assessment of 20 Distressed Buildings in Mussoorie, Dehradun.

Dear sir,

This has reference to your letter cited above, we are pleased to undertake the above assignment in project mode at CSIR-CBRI, Roorkee. A detailed project proposal encompassing scope of work, financial aspect, terms and condition, duration etc, is attached.

The fee for the above assignment shall be 20 lakhs (+18% GST) and is to be paid in advance to Director, CSIR-CBRI, Roorkee through RTGS/NEFT.

The bank details of account for the online transfer are as under:

Name	Director, CBRI, Roorkee
A/c No.	30269847968
Branch code	10635
IFSC Code	SBIN0010635
GSTIN	05AAATC2716R1ZL

Though, the total project duration is mentioned as 2 months, we will complete the survey of 20 identified buildings in one month and will have discussions on draft report. Also you are requested to send the details of fund transfer through e-mail at the earliest please.

In case of any clarifications, please feel free to contact.

With kind regards,
Your Sincerely,


(Ashish Kapoor)

PREAMBLE

Executive engineer, Mussoorie Dehradun Development Authority, Dehradun vide letter no. 134/2024 dated 26.4.2024, has requested CSIR-CBRI for consultancy services for the building safety assessment of 20 distressed buildings in Mussoorie, Dehradun.

Accordingly, the building safety assessment of 20 distressed buildings in Mussoorie, Dehradun can be undertaken by CSIR-CBRI in project Mode. This Proposal is a part of normal CSIR-CBRI activities by which expert advice on technical matters is provided to the client after necessary field investigation, data interpretation, analysis and finally recommendations. CSIR-CBRI is well equipped with sophisticated instrument and specialized CAD software for carrying out investigation structural analysis & design. CSIR-CBRI has earlier handled several assignments of similar kind for various agencies.

SCOPE OF WORK

In order to carry out safety assessment of existing building (20 Nos.-2 to 3 storied load bearing buildings) at Mussoorie, Dehradun with reference to relevant codes, seismic provisions, the scope of work broadly encompasses.

- a. Visual, Physical measurements of 20 identified buildings at vulnerable locations of Mussoorie, Dehradun.
- b. Building safety assessment of 20 distressed buildings in Mussoorie, Dehradun by adopting Rapid visual survey Distress/Damage Study-Classification as per EMS 1998, Distress mapping, crack Measurement.
- c. Damage Quantification.

DOCUMENTATION

The report will comprise of general details of the buildings viz. location on plan, salient features of sub-structures and super-structures, assessment of vulnerable parameter for building safety, based on visual and physical measurement, damage mapping, crack mapping, safety assessment viz RVS and EMS guidelines etc. A Comprehensive report for the above study shall be submitted to MDDA, Dehradun in two copies immediately after completion of present work.

FNANCIAL DETAILS

The above study is to be pursued as consultancy assignment by CSIR-CBRI and funded MDDA, Dehradun. The charges for detailed investigation (as covered under scope of work, above) will be **Rs.20.00 lakhs (Twenty Lakhs only) + GST (as applicable)**. These charges are worked out according to prevailing guidelines of Council of Scientific & Industrial Research (CSIR), New Delhi of which CBRI is a constituent establishment. These charges include, expenses on manpower, TA/DA, transport, equipment, consumables & services computer usage and incidental expense. As CSIR is exempted from TDS, hence no deductions from the consultancy fee shall be made toward income tax.

The total amount is payable in advance through a demand draft drawn in favor of Director, CSIR-Central Building Research Institute, Roorkee. The bank details of account for the online transfer are as under:

Name	Director, CBRI, Roorkee
A/c No.	30269847968

Branch code 10635
 IFSC Code SBIN0010635
 GSTIN 05AAATC2716R1ZL

DURATION OF PROJECT

Total duration of the proposed assignment is worked out as 2 months. The Institute will initiate work within 15 days after the receipt of the fee. Depending upon circumstances some changes may take place in the proposed overall duration based on mutual agreement as and when necessary. Sponsor will be welcome to associate during the course of our work at site.

TECHNICAL SUPERVISION

The responsibility of CSIR-CBRI is limited to only technical advice, however, on request from MDDA, Dehradun.

TERMS & CONDITIONS

Inputs from MDDA, Dehradun.

- MDDA, Dehradun will provide all relevant information, drawings, ownership data etc., available with them about the structure and sub-structure for identified 20 buildings under reference.
 - During the course of investigation at site an personnel of MDDA, Dehradun will be in contact with the CSIR-CBRI team of scientists for providing easy access to the buildings, measurements, crack mapping etc., external as well as internal and other incidental help like providing electrical connections, clearance to use the instruments near the building.
 - MDDA, Dehradun shall provide logistic support to the visiting team for their stay (on payment basis by the team), local transport, access to officials / local bodies etc.
- Submission of the report will conclude the assignment.
 - The execution or supervision of the recommendations will be the responsibility of from MDDA, Dehradun
 - CSIR-CBRI will be accessible for technical discussion on the work. The responsibility of CSIR-CBRI will be limited to technical matters only on the basis of data collected by CSIR-CBRI and information provided by the sponsor. Any legal/contractual obligations on account of implementation of the recommendations will be the responsibility of the users of the report.

कार्यालय मसूरी देहरादून विकास प्राधिकरण, देहरादून।

पत्रांक : 347 / 2024

दिनांक - 24/05/2024

सेवा में,

निदेशक,
केंद्रीय भवन अनुसंधान संस्थान (सी0बी0आर0आई0),
रुडकी।

विषय: मा0 राष्ट्रीय हरित प्राधिकरण, नई दिल्ली में योजित मूल आवेदन संख्या- 51/2023 के संबंध में दिनांक 26.07.2023 को पारित आदेश के अनुपालनार्थ मुख्य सचिव, उत्तराखण्ड शासन की अध्यक्षता में दिनांक 11/09/2023 को सम्पन्न बैठक के कार्यवृत्त में निर्गत निर्देशों के अनुपालन के संबंध में।

महोदय,

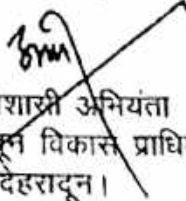
उपरोक्त विषयक अपने कार्यालय के पत्र संख्या- SE/AK/05/2024/1143 दिनांक 06/05/2024 का संदर्भ ग्रहण करने का कष्ट करें, जिसके माध्यम से आपके द्वारा प्राधिकरण द्वारा प्रेषित पत्रों के क्रम में मा0 राष्ट्रीय हरित प्राधिकरण, नई दिल्ली में योजित मूल आवेदन संख्या- 51/2023 के संबंध में दिनांक 26.07.2023 को पारित आदेश के अनुपालनार्थ मुख्य सचिव, उत्तराखण्ड शासन की अध्यक्षता में दिनांक 11/09/2023 को सम्पन्न बैठक के बैठक कार्यवृत्त के बिंदु संख्या- 03 में दिये गये निर्देशों के क्रम में मसूरी क्षेत्र में नगर पालिका परिषद, मसूरी द्वारा उपलब्ध करायी गयी गिरासू भवनों की जाँच किये जाने हेतु रु0 20 लाख (18 प्रतिशत जी0एस0टी0 अतिरिक्त) की धनराशि पत्र में वर्णित बैंक विवरणानुसार भुगतान किये जाने हेतु पत्र प्रेषित किया गया था।

अवगत कराया जाना है कि उपरोक्त कार्य हेतु रु0 21,60,000/- की धनराशि (मूल धनराशि रु0 23,60,000 (18 प्रतिशत जी0एस0टी0 सहित) में से 2 प्रतिशत TDS कटौती उपरान्त) का भुगतान Director CBRI Roorkee के पक्ष में बैंक संख्या- 505242 दिनांक 16/05/2024 के माध्यम से दिनांक 20/05/2024 को RTGS (UTR No.: BARBR52024052000878406) के माध्यम से किया जा चुका है।

अतः मसूरी क्षेत्र में नगर पालिका परिषद, मसूरी द्वारा उपलब्ध करायी गयी गिरासू भवनों की जाँच करते हुए कृत कार्यवाही से शीघ्र प्राधिकरण को अवगत कराने का कष्ट करें।

संलग्नक:- Payment Voucher की प्रति।

भवदीय,


अधिशारी अभियंता
मसूरी देहरादून विकास प्राधिकरण
देहरादून।

प्रतिलिपि:-

1. श्री आशीष कपूर, वैज्ञानिक, संरचना अभियांत्रिकी विभाग, केंद्रीय भवन अनुसंधान संस्थान, रुडकी, उत्तराखण्ड को आवश्यक कार्यवाही हेतु प्रेषित।

अधिशारी अभियंता
मसूरी देहरादून विकास प्राधिकरण
देहरादून।

कार्यालय मसूरी देहरादून विकास प्राधिकरण, देहरादून।

पत्रांक:- 1204/2023

दिनांक:- 30/10/23

सेवा में,

निदेशक,
केन्द्रीय भवन अनुसंधान संस्थान (सी0बी0आर0आई0),
रूड़की।


विषय: मा0 राष्ट्रीय हरित प्राधिकरण, नई दिल्ली में योजित मूल आवेदन संख्या- 51/2023 के संबंध में दिनांक 26.07.2023 को पारित आदेश के अनुपालनार्थ मुख्य सचिव, उत्तराखण्ड शासन की अध्यक्षता में दिनांक 11/09/2023 को सम्पन्न बैठक के कार्यवृत्त में निर्गत निर्देशों के अनुपालन के संबंध में।

महोदय,

उपरोक्त विषयक पत्र के साथ संलग्न मा0 राष्ट्रीय हरित प्राधिकरण, नई दिल्ली में योजित मूल आवेदन संख्या- 51/2023 के संबंध में दिनांक 26.07.2023 को पारित आदेश के अनुपालनार्थ मुख्य सचिव, उत्तराखण्ड शासन की अध्यक्षता में दिनांक 11/09/2023 को सम्पन्न बैठक के बैठक कार्यवृत्त का संदर्भ ग्रहण करने का कष्ट करें, जिस हेतु उपरोक्त बैठक कार्यवृत्त के बिंदु संख्या- 03 में दिये गये निर्देशों के क्रम में मसूरी क्षेत्र में नगर पालिका परिषद, मसूरी द्वारा उपलब्ध करायी गयी गिरासू भवनों की सूची आपको पत्र के साथ संलग्न कर इस आशय से प्रेषित की जा रही है कि उपरोक्त भवनों की जाँच करते हुए प्राधिकरण को शीघ्र अवगत कराने का कष्ट करें।

संलग्नक:उपरोक्तानुसार।

भवदीय


अधीक्षक अभियंता
मसूरी देहरादून विकास प्राधिकरण
देहरादून।

अधिकासी अधिकारी

महोदय मेरे एवं वर्क एजेंट द्वारा आज दिनांक 16/01/2023 को लंदीर बाजार स्थित भवन एवं भूमि का धसाव हो रहा है का निरीक्षण किया गया है जिसमें निम्न लोगों की संपत्ति सम्मिलित है।

क्रम संख्या	संपत्ति का नाम	संपत्ति स्वामि का नाम	परिवार में सदस्यों की संख्या	किरायेदारों का नाम	परिवार में सदस्यों की संख्या
1.	भवन	अतिन कुमार पुत्र श्री अरुण कुमार	04	-	
2.	भवन	नितिन कुमार पुत्र श्री अशोक कुमार	08	-	
3.	दुकान	नितिन कुमार पुत्र श्री अशोक कुमार	-	बुदेव जोशी	01
4.	दुकान	नितिन कुमार पुत्र श्री अशोक कुमार	-	-	-
5.	भवन एवं दुकान	नितिन कुमार पुत्र श्री अशोक कुमार	-	रजनी रावत	03
6.	दुकान (बंद)	किशन लाल	01	-	-
7.	दुकान	नितिन कुमार पुत्र श्री अशोक कुमार	-	दर्शन रौथान	-
8.	गोदाम	प्रियांशु गोयल	-	-	-
9.	दुकान	प्रियांशु गोयल	-	-	-
10.	दिगम्बर जैन मन्दिर	दिगम्बर जैन मन्दिर समिति	-	-	-
11.	होटल निशिमा	पूर्णमा जैन	-	-	-
12.	दुकान (साई कॉस्मेटिक)	-	-	-	-
13.	भवन	-	-	प्रवीण खरोला	05
14.	भवन	राकेश ठाकुर	04	-	-

Tax Department

15	भवन		04	महेश पुत्र श्री नंदन	-
16	भवन	महमूदा खातून	06	-	-
17	भवन	-		नीशाद अहमद	03
18	भवन	-	-	भगत सिंह	05
19	भवन	गीता पुत्री कृष्ण लाल	05	-	-
20	भवन	-	-	मुकेश	06

~~Signature~~
वकी एजेंट

~~Signature~~
कर्म निरीक्षक

~~Signature~~
F. 2.
पत्रिका



कार्यालय प्रमुख 536 यन्ता एवं विभागाध्यक्ष,
"विधि प्रकोष्ठ वर्ग"
लोक निर्माण विभाग, देहरादून

कोर्ट केस/महत्वपूर्ण
Annexure No. 3



OFFICE OF THE ENGINEER IN CHIEF, P.W.D., DEHRADUN, UTTARAKHAND

Phone & Fax:- 0135-2531742, 2530431

E-Mail-cepwduavidhi@gmail.com

Website-http://pwd.uk.gov.in

पत्र सं०-1385/3722 वि०प्र०/2023

दिनांक 16 / 08 / 2024

सेवा में,

प्रमुख सचिव,
पर्यावरण संरक्षण एवं जलवायु परिवर्तन विभाग,
उत्तराखण्ड शासन, देहरादून।
विषय:- मा० राष्ट्रीय हरित प्राधिकरण, नई दिल्ली में योजित मूल आवेदन
संख्या-51/2023 **Suo Moto in Re: News items published in the
news paper the tribuna, dated 16-01-2023 entitled “
Joshimath Dissaster a warning for Mussoorie’** के सम्बन्ध में।
सन्दर्भ:- इस कार्यालय का पत्र संख्या 1202/3722 वि०प्र०/2023 दिनांक 27.07.2024
महोदय,

कृपया उपर्युक्त विषयक सन्दर्भित पत्र का अवलोकन करने का कष्ट करें,
जिसके द्वारा प्रमुख सचिव, पर्यावरण संरक्षण एवं जलवायु परिवर्तन विभाग, उत्तराखण्ड शासन
की अध्यक्षता में दिनांक दिनांक 25.04.2024 को सम्पन्न बैठक के कार्यवृत्त के बिन्दु संख्या 2
के 1 एवं 4 के सम्बन्ध में चाही गई सूचना प्रेषित की गई थी।

उक्त सम्बन्ध में दिनांक 14.08.2024 को मुख्य सचिव, उत्तराखण्ड शासन
देहरादून की अध्यक्षता में बैठक आहूत की गई। बैठक में लिये गये निर्णय के अनुपालन में
उक्त कार्यवृत्त के बिन्दु संख्या 2 के 1 एवं 4 के सम्बन्ध में देहरादून-मसूरी राज्य मार्ग पर
Landslide treatment कार्य को पूर्ण किये जाने हेतु अधिशासी अभियन्ता, प्रान्तीय खण्ड,
लो०नि०वि० देहरादून को नोडल अधिकारी नामित किया गया है तथा उक्त कार्य को पूर्ण
किये जाने की लक्षित तिथि दिनांक 31.03.2025 की निर्धारित की गई।

अतः उपरोक्तानुसार सूचना सादर प्रेषित।

(इं दीपक कुमार योदव)

प्रमुख अभियन्ता एवं विभागाध्यक्ष

प्रतिलिपि:-सचिव, लोक निर्माण विभाग उत्तराखण्ड शासन, देहरादून को सादर सूचनार्थ
प्रेषित।

प्रतिलिपि:-सदस्य सचिव, उत्तराखण्ड प्रदूषण नियंत्रण बोर्ड, देहरादून को सादर सूचनार्थ
प्रेषित।

प्रतिलिपि:-मुख्य अभियन्ता, क्षेत्रीय कार्यालय लो०नि०वि०, देहरादून को सूचनार्थ प्रेषित।

प्रतिलिपि:-अधीक्षण अभियन्ता, नवम् वृत्त, लो०नि०वि० देहरादून को सूचनार्थ एवं आवश्यक
कार्यवाही हेतु प्रेषित।

प्रतिलिपि:-अधिशासी अभियन्ता, प्रान्तीय खण्ड, लो०नि०वि० देहरादून को इस निर्देश के साथ
प्रेषित है कि प्रकरण में आपको नोडल अधिकारी नामित किया जाता है तथा
दिनांक 31.05.2025 तक कार्य पूर्ण करना सुनिश्चित करें।

प्रमुख अभियन्ता एवं विभागाध्यक्ष

मा0 राष्ट्रीय हरित प्राधिकरण नई दिल्ली में योजित मूल आवेदन संख्या – 51/2023 Suo Moto in Re: News items published in the newspaper the tribune, dated 16.01.2023 entitled “ Joshimath Disaster a warning for Mussoorie” के सम्बन्ध में प्रमुख सचिव, पर्यावरण संरक्षण एवं जलवायु परिवर्तन विभाग, उत्तराखण्ड शासन की अध्यक्षता में दिनांक 25.04.2024 को सम्पन्न बैठक के कार्यवृत्त की अनुपालन आख्या के सम्बन्ध में।

क्र.सं.	Preventive & Remedial Measures	अनुपालन आख्या
1/4	When preparing roads or buildings, it was recommended that the boulders not be removed by digging or blast the hillsides. In landslide prone areas. Stones and boulders should not be removed from the bottom of the hill because this would remove toe support. increasing the likelihood of land slides. It is necessary to fill in any cracks that have appeared on the slopes	<p>उक्त बिन्दु के सापेक्ष अंकित टिप्पणी “देहरादून-मसूरी राज्य मार्ग पर Landslide treatment कार्य पूर्ण कर लिया गया है” के सम्बन्ध में स्पष्ट करना है कि उक्त कार्य अभी पूर्ण नहीं है वरन प्रगति में है, जिसको पूर्ण किये जाने की लक्षित तिथि 31.12.2024 निर्धारित की गयी है। कार्य के सम्बन्ध में विस्तृत आख्या निम्नवत है-</p> <ul style="list-style-type: none"> • उक्त Landslide treatment कार्य की स्वीकृति उत्तराखण्ड शासन के शासनादेश संख्या :- 1081/XVIII-B-1/2023-4(70)/2023 [E-59541] दिनांक 09.08.2023 द्वारा रू0 2174.92 लाख की प्राप्त हुई है। • कार्य हेतु ठेकेदार मैसर्स शिवालिक इन्फ्रावैचर्स प्रा0लि0, देहरादून के नाम अनुबन्ध संख्या 54/एस.ई.-9/23-24 दिनांक 22.12.2023 गठित है। • सचिव, आपदा प्रबन्धन, उत्तराखण्ड शासन देहरादून द्वारा उत्तराखण्ड भूस्खलन न्यूनीकरण एवं प्रबन्धन केन्द्र देहरादून (ULMMC) को परियोजना अनुश्रवण हेतु PMC नियुक्त किया गया है। वर्तमान में Site specific conditions के आधार पर डिजाईन/ड्रॉइंग्स में कतिपय संशोधन किये जाने के उपरान्त कार्य प्रगति प्राप्त पर लें • कार्य से उत्पादित मलबे के निस्तारण हेतु 3 मक डम्पिंग स्थल चयनित हैं उन्ही में मलबा निस्तारित किया जायेगा। • कार्य पूर्ण करने की Time line मय स्थल फोटोग्राफ्स संलग्न हैं।

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Name of Project: Slope Treatment work for protection of landslide near Galogi at Dehradun-Mussoorie Motor Road (Km-25) in Distt. Dehradun under SDMF

SITE PHOTOGRAPHS



Scaling of Overburden & Making of Benches



Installation of Self driven anchors (SDA-32mm dia & 13M long @2M C/C Bothways)

540



Installation of Gabions at Muck dumping site



Installation of Chain link mesh

541 TIME LINE

<u>Sl. No</u>	<u>Item</u>	<u>As per scope of work</u>	<u>Progress from 06.05.2024 to 30.06.2024</u>	<u>Physical Progress Last meeting dated 06.05.2024</u>	<u>Cumulative Progress</u>	<u>Target Completion Date</u>
<u>1</u>	<u>Clearing of site</u>	<u>1.0 Hect.</u>	<u>0.20 Hect</u>	<u>0.30 Hect.</u>	<u>0.50 Hect.</u>	<u>15-08-2024</u>
<u>2</u>	<u>Earth Work</u>	<u>40873.00 Cum</u>	<u>2000.00 Cum</u>	<u>10000.00</u>	<u>12000.00 Cum</u>	<u>31-08-2024</u>
<u>3</u>	<u>Making Dumping Zone</u>	<u>5 Nos.</u>	<u>1 No</u>	<u>1 No</u>	<u>2 Nos</u>	<u>15-08-2024</u>
<u>4</u>	<u>C/O RCC Toe wall</u>	<u>100.00 Mtr.</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>30-11-2024</u>
<u>5</u>	<u>P/F Weep holes</u>	<u>120.00 Mtr.</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>31-10-2024</u>
<u>6</u>	<u>P/F PVC Drainage Pipes</u>	<u>3948.00 Mtr.</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>30-11-2024</u>
<u>7</u>	<u>Installation Of SDA (Anchors)</u>	<u>32079.00 Mtr.</u>	<u>6300.00 Mtr</u>	<u>650.00 Mtr.</u>	<u>6950.00 Mtr.</u>	<u>15-10-2024</u>
<u>8</u>	<u>P/F Chain-link Mesh</u>	<u>9870.00 Sqm</u>	<u>1080.00 Sqm</u>	<u>-</u>	<u>1080.00 Sqm</u>	<u>30-10-2024</u>
<u>9</u>	<u>Shotcrete on Slope</u>	<u>987.00 Cum</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>15-11-2024</u>
<u>10</u>	<u>C/O Catchment drains</u>	<u>567.00 Mtr.</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>15-12-2024</u>
<u>11</u>	<u>C/O Damaged R/Wall in Valley side</u>	<u>40.00 Mtr.</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>15-12-2024</u>
<u>12</u>	<u>Restoration of Road</u>	<u>100.00 Mtr.</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>31-12-2024</u>

Site Report

Degradable Slopes in Mussoorie and suggestive remedial measures

June 2024

Degradable Slopes in Mussoorie and suggestive remedial measures

Preface

In compliances of the instructions received during the meeting held on 20th May 2024, chaired by the Secretary of Disaster Management at the Uttarakhand Secretariat, to identify vulnerable slopes for Phytoremedial measures in Mussoorie, as mentioned in the suo moto news item published in the tribunal dated 16th January 2023 titled "Joshimath Disaster a warning for Mussoorie" (NGT, 51/2023), a meeting followed by a site visit of degradable slopes in the Mussoorie area was held at the DFO office premise in Mussoorie on 27th May 2024.



DFO Office, Mussoorie

Nine sites were identified through a desk-based study using the GIS platform, in the presence of officers from various departments as follows: (Attendance attached)

1	Shri Ramji Sharan Sharma	(ADM, Dehradun)	8	Dr Kamini Bisht	(Assistant Geologist, DGM)
2	Dr Deepak Saini	(SDM, Mussoorie)	9	Mr R S Gusain	(Executive Engineer, Irrigation)
3	Mr Uday Gaur	(SDFO, Mussoorie)	10	Mr Aniket Thapliyal	(TA, DGM)
4	Mr R K Palk	(AE, PWD, Mussoorie)	11	Mr Lekendra Rana	(Irrigation Div. Vikashnagar)
5	Mr S K Dimri	(ASO, UKPCB)	12	Mr J K Tripathy	(Acting S E, PWD)
6	Dr Ruchika Tandon	(Senior Geologist, ULMCC)	13	Mr Rajesh Naithani	(EO, NPP Mussoorie)
7	Mr Ashish Prakash	(Geologist, GSI)	14	Mr S P Gairola	(Range Officer, Forest Dept, Mussoorie)

After identifying the sites within the administrative boundary of Mussoorie, a field survey was conducted. This report includes observations and proposed remedial measures for all visited sites.

Location of Selected Sites:

The figure below shows the locations of the 9 selected sites, each marked within a 5 km buffer radius from Mussoorie clocktower, highlighting degradable slopes within Mussoorie's administrative boundary.

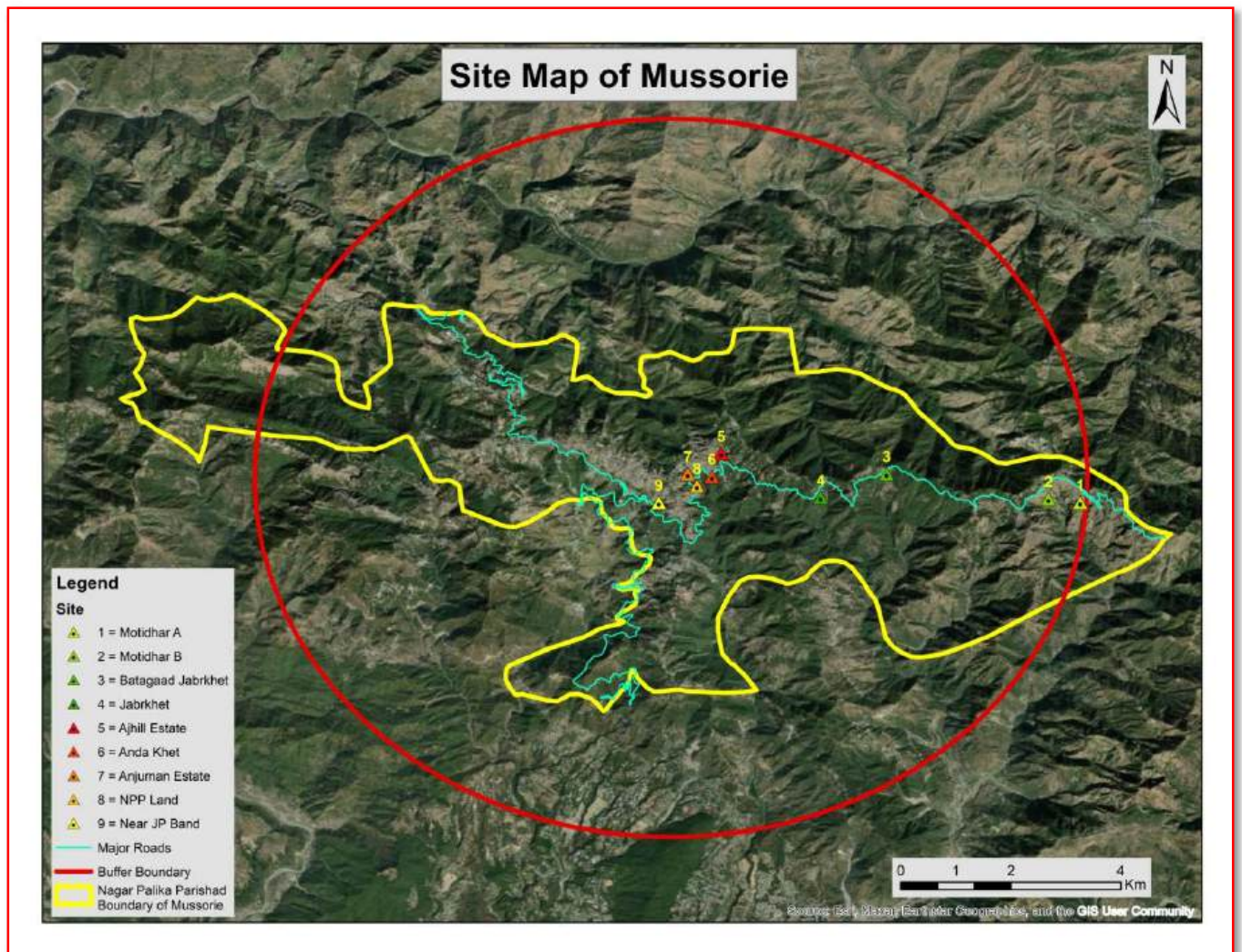


Figure 1 Location of selected sites of degradable slopes in Mussoorie

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Table 1 : Locations and status of sites (courtesy: Forest Dept, Mussoorie)

क्रमस	क्षेत्र का नाम	अक्षांश	देशान्तर	भूमि की वैधानिक परिस्थिति	सम्बन्धित विभाग
1	मोटिधार 5बी	30° 27' 0.87"	78° 9' 11.47"	आरक्षित वन भूमि	मसूरी वन प्रभाग मसूरी
2	मोटिधार 5बी	30° 26' 57.80"	78° 8' 54.46"	आरक्षित वन भूमि	मसूरी वन प्रभाग मसूरी
3	जबरखेत इस्टेट बाटागाड, मसूरी,	30° 27' 16.60"	78° 7' 16.02"	निजी वन भूमि	नगर पालिका / पेयजल / लो०नि०वि०
4	जबरखेत इस्टेट मसूरी बाई पास रोड	30° 27' 4.81"	78° 6' 38.96"	निजी वन भूमि	नगर पालिका / पेयजल / लो०नि०वि०
5	अंडा खेत मसूरी बाईपास रोड ।	30° 27' 15.33"	78° 5' 34.15"	कैंट भूमि	नगर पालिका / पेयजल / लो०नि०वि०
6	अंजुमन इस्टेट / नगरपालिका	30° 27' 16.90"	78° 5' 20.05"	निजी वन भूमि	नगर पालिका / पेयजल / लो०नि०वि०
7	नगर पालिका भूमि बाई पास रोड, डंपिंग जोन क्षेत्र ।	30° 27' 9.81"	78° 5' 25.46"	नगर पालिका परिषद मसूरी की भूमि	नगर पालिका / पेयजल / लो०नि०वि०
8	जे०पी०बैड बाई पास रोड ।	30° 27' 0.04"	78° 5' 3.12"	निजी वन एवं नगरपालिका भूमि	नगर पालिका / पेयजल / लो०नि०वि०
9	एजहिल इस्टेट एवं नगरपालिका	30° 27' 29.03"	78° 5' 39.51"	निजी वन एवं नगरपालिका भूमि	नगर पालिका / पेयजल / लो०नि०वि०

The observations and suggestions of all the visited sites are as below

I. Sites 1 & 2 (Motidhar 5B)

a. Observations

Site-1 (Figure 2 & 3) is located adjacent to Site 2 (Figure 4 & 5) along National Highway (Tehri Road) and exhibits similar geological and geomorphological features described below:

- Both sites are within the Reserved Forest Area.
- The area remains dry, receiving rainwater only from higher elevations during monsoons.
- The slope averages approximately 40° in steepness, with a wide valley and sparse vegetation. It varies from very steep (up to 70°) to gentler slopes (<30°) in some areas.
- The soil cover is thin, with no exposed rocks at accessible sites, and shows several erosional features.
- Developing first-order rivulets carry soil and deposit material in areas with gentler slopes.
- The presence of few check dams/pits that promote vegetation growth are present on slope. These structures block eroded soil from upper surfaces, allowing bushes and grasses to grow naturally.

- Settlements are observed near the roadside, with a few houses constructed on terraced slopes, possibly after modifying the natural slope



Figure 2: Google view of Site 1



Figure 3: Photo exhibiting Erosional features along developing seasonal rivulet

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Figure 4: Google view of Site 2 showing wide valley, many seasonal rivulets and erosional/depositional environment



Figure 5 shows the closer view of Site

Suggestions

- Phytoremediation measures are recommended for Site 1 and Site 2, including the installation of check dams and planting local species/grasses to stabilize the slopes and prevent further degradation.
- It is crucial to ensure no illegal constructions or excessive human interventions, especially near developing drainage systems, as these slopes exhibit primary signs of soil and slope degradation.

- The Forest Department is instructed to undertake further necessary actions such as contouring/surveying the area and identifying/planning proposed check dams and plantation areas on contour maps for both Site 1 and Site 2. To facilitate this, DEM generation through drone survey or DGPS should be conducted.

II. Site 3 (Batagaad/Jabarkhet Estate)

a. Observations

- The slope below the road is extremely steep (approximately 80°) and densely covered with vegetation.
- There are no significant anthropogenic activities observed at this site, except for a few shops near the roadside.
- Civil mitigation measures have already been implemented below the main road to enhance road safety.
- The rest of the surrounding area does not indicate any major concerns regarding destabilization.
- Small patches of weathered surfaces have been observed from the roadside on very steep slopes. These surfaces have been present for many years according to temporal Google platform data, indicating that they are not newly developed.
- The area is densely covered with vegetation, and there are no signs of creeping observed.

b. Suggestions

Mass wasting processes are natural geomorphological activities inherent to hilly areas, sustained by natural processes such as weathering, deposition, and vegetation growth, unless disrupted by human activities. Therefore, no mitigation measures are necessary at this site. However, it appears that debris has been dumped above the existing civil structures, indicating a need for monitoring and prohibition of such practices (Figure 7).

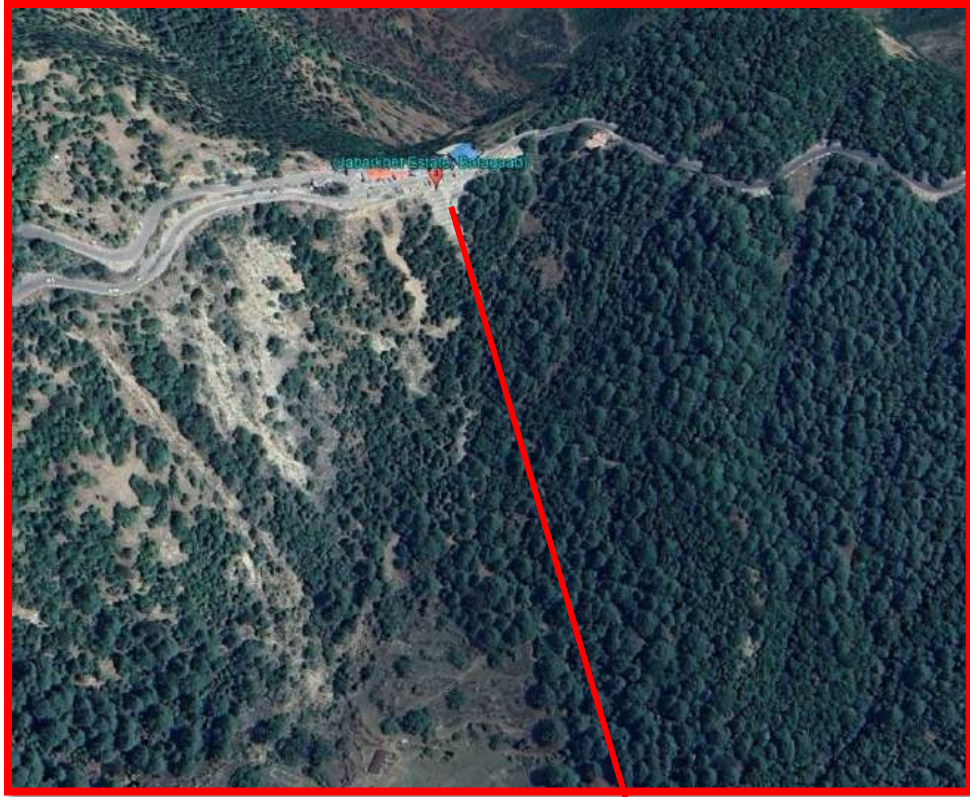


Figure 6 Google view of Site 3

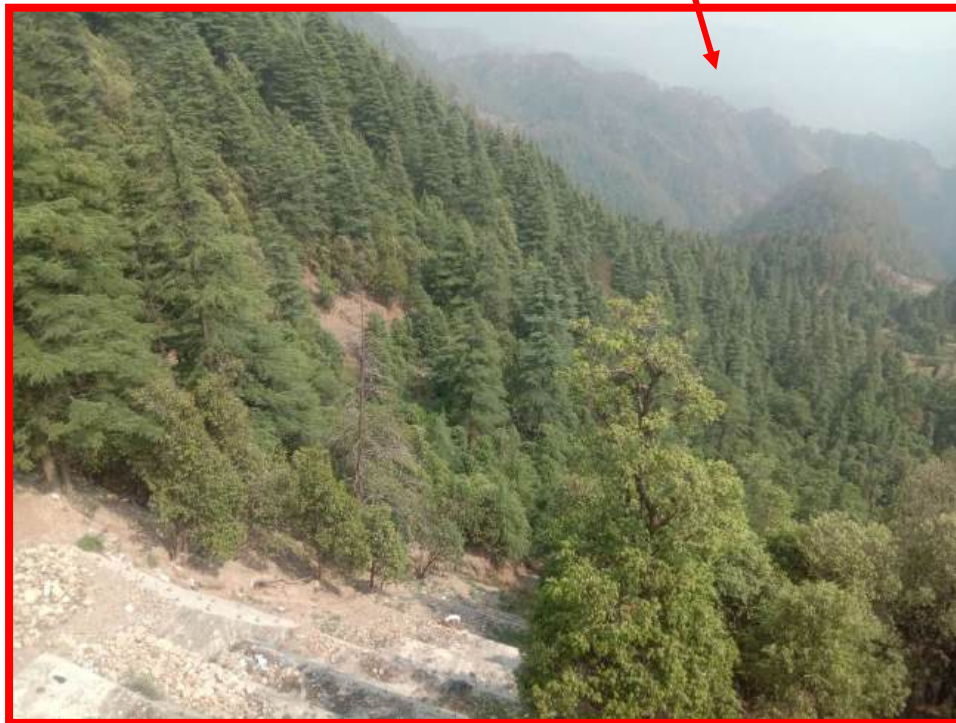


Figure 7: Stepped Retaining wall provided at Site 3

III. Site 4 (Jabarkhet Estate)

a. Observations

- A quartzite rock cliff is exposed along the road section.
- The exposed rock is particularly strong, but the blocks are irregularly jointed, posing a risk of rockfall primarily affecting vehicles.



- The site is located away from any settlements.
- Below the road, the slope is steep (approximately 80°), suggesting a thin soil cover.
- Erosional features are observed towards the valley side, a common occurrence in hilly terrain, but they do not appear to pose a risk to natural resources or habitation.

Figure 8 photo exhibiting the rocky slope prone to rock failure

b. Suggestions:

- Since the site below the road exhibits erosional and mass wasting processes, which are natural dynamics in hilly areas and given its distance from settlements, it requires no major concern.
- Rock catchers should be installed above the road to mitigate accidents caused by rockfall.

IV. Site 5 (Ajhill Estate)

a. Observations:

- A newly developed scarp has been observed at this site along the left flank of the stream at two different elevations.
- The stream bed is moderately to steeply inclined, with settlements situated above.
- There is no exposed rock and the soil cover appears to be thin.
- It was also noted that waste material/soil has been dumped at various sites, which may give the illusion of landslides. Such practices should be monitored by the Nagar Nigam, and further cutting in the area should be restricted.
- Downstream of the stream, houses have been constructed in an unsafe location (possibly encroachment). Expansion of such areas for habitation should be restricted.

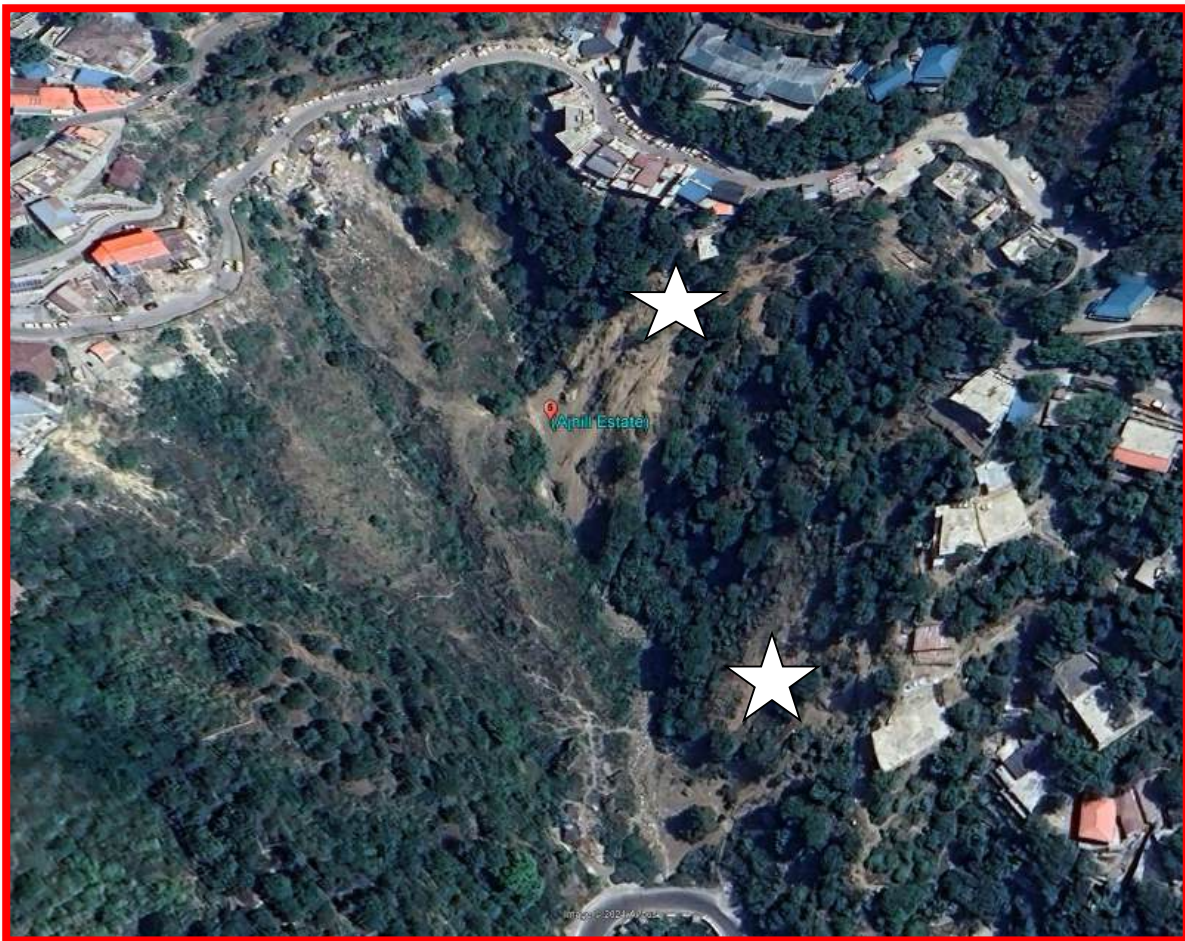


Figure 9: The Google view of Site 5 shows the development of seasonal streams and two new landslide scarps (denoted by stars).

b. Suggestions:

- There is an initial development stage of landslide scars along a rivulet, necessitating the installation of check dams and retaining structures.
- Vegetation can be planted along and beside the check dams to stabilize the soil and prevent further erosion by rainwater.
- A comprehensive plan and design, including contouring and placement of civil measures, are required at this site. DEM generation through drone survey or DGPS tools is recommended based on the accessibility of the area.
- The irrigation department, in consultation with the forest department, should initiate further work to select appropriate plant species that can help restrain soil erosion

V. Site 6 (Anda Khet)**a. Observations:**

- There are no identified issues of degradable slope at this site; only construction debris (Malba) has been dumped, which has created the appearance of a landslide in Google Maps,



prompting its selection in GIS platform analysis.

Figure 10 : Google view of Site 6

- The entire area is densely covered with thick vegetation
- The road is stable and no cracks were observed on road surface

- There are no exposed rock outcrops, and there has been no cutting of hillsides.

VI Site 7 (Anjuman Estate)

a. Observations

- The majority of the area surrounding this site is dominated by limestone, dolomitic limestone, and shale. These rock types are highly soluble in water, with solution action being particularly selective and occurring in areas where the rock is crushed or faulted. Crushed rock material (dark black in color) is observed towards the right side of the bridge, making this area prone to landslides.
- A shallow landslide scarp is present on the right side of the bridge, with smaller scarps developing towards the left side.
- On the left side of the bridge, there is a seasonal stream (nala) that transports loose material during rainfall. Sediments collected in a siltation tank constructed at the road base beside the stream are presently clogged, indicating that the soil-forming material is loose and susceptible to erosion by rainwater. Furthermore, this tank is connected to a culvert that diverts rainwater towards a major stream at the base of the hill, but it is filled with waste material.
- A fault is observed in this area, increasing the likelihood of landslips.

b. Suggestions

- Retaining structures should be installed on both sides of the bridge below the landslide scarps
- The clogged siltation tank must be cleaned regularly after the monsoon season.
- Dumping of waste material at this site should be prohibited.
- Mitigation measures should be implemented at the landslide site after detailed investigations.
- Installation of check dams along the seasonal rivulet has been recommended.
- The PWD department must submit the design and proposal, and carry out contouring of the area or DEM generation through Drone Survey.



Figure 11 exhibiting the conditions of slope at Site 7

VII Site 8 (NPP Land)

a. Observations

- At this site, there is a shallow landslide scarp on the left side of the nala and a dumping zone on the right side.
- The dumping zone has an angle of approximately 50° and is located near a settlement, requiring attention.
- A sub vertical shallow landslide scarp is present at the base of the hill. While it does not currently affect habitable areas, further development of the scarp due to toe cutting could potentially harm the road above the landslide scarp. Therefore, civil mitigation measures are necessary.

b. Suggestions

- A retaining or protection wall is recommended at the toe of the landslide (right side of the nala) and at the dumping site (left side of the nala).
- The dumping zone could be reformed into a stepped shape, and plantation or bioengineering measures should be planned at this site to enhance stability.
- Contouring of the slope may be necessary for further design of mitigation measures at this site.
- The irrigation department should take the lead in planning, designing, and submitting proposals for this site.

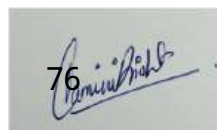
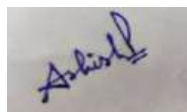




Figure 12 . Dumping Zone and Shallow landslide scarp present at site 8

VIII Site 9 (Near JP Band)

Observations

- Along this site and at the road embankment, there are presence of three adjacent narrow rivulets that carry soil material during the monsoon and deposit it along the roadside.
- A smaller scarp has developed due to slope cutting by rainwater.
- Geomorphologically, the slope is steep (approximately 60-70 degrees).

b. Suggestions:

- To reduce the velocity of rainwater, check dams should be installed along with culverts to effectively divert water.



Figure 13 exhibiting the degrade slope along seasonal rivulet at site 9

- Considering the development of smaller landslide scarps or degradable slopes near the roadside, the installation of jute nets is recommended. These nets will stabilize the slopes by preventing soil erosion and promoting natural vegetation growth.

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Conclusions:

The intensity of soil erosion and mass wasting in the Mussoorie region is influenced by various factors including geomorphological processes, geological structure, precipitation, slope characteristics, land use/land cover, and infrastructure development. Even minor changes in slope gradient can significantly impact erosion and mass wasting due to the thin soil cover over steep slopes in the area.

In Mussoorie, the predominant litho unit is limestone covered with thin layers of soil, which is generally strong and massive. The slopes are steep, dry, and devoid of natural springs across all nine visited sites. Major deep-seated landslides are not common in the area; instead, minor scarps occur near habitation and along seasonal rivulets, primarily triggered by heavy monsoonal rainwater, as observed at sites 5, 7, and 8. Sites 1 and 2, falling within Reserved Forest areas, exhibit degradable slopes, while other locations show minor scarps, common in hilly environments. Many sites have dumped materials that may falsely appear as landslips on Google Maps.

Geologically and geomorphologically, Mussoorie differs significantly from Joshimath in terms of climate, absence of springs, rock and soil types, and the absence of major perennial river systems. As a result, issues such as subsidence, road cracks, and creeping observed in Joshimath are not evident at the visited sites in Mussoorie, highlighting the distinct geological settings between the two areas.

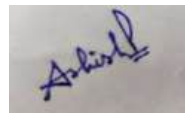
Nevertheless, considering the active geomorphological processes, plantation and/or civil works can be planned in identified sites based on accessibility & necessity and the recommendations provided in this report.



(Mr. Aniket Thapliyal)
TA, DGM




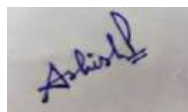
(Dr. Kamini Bisht)
Assistant Geologist-DGM



(Mr. Ashish Prakash)
Geologist-GSI


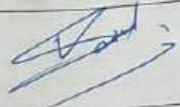




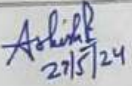

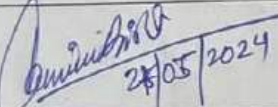
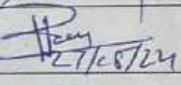


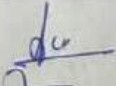
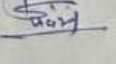


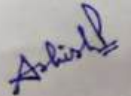
(Dr. Ruchika Tandon)
Senior Geologist, ULMCC




दिनांक 27 मई, 2024 को मसूरी वन प्रभाग, मसूरी प्रभागीय कार्यालय में मा0 राष्ट्रीय, हरित प्राधिकरण नई दिल्ली में योजित मूल आवेदन सं0 51/2023 दिनांक 16.01.2023 के कम आयोजित बैठक में अधिकारियों/कर्मचारियों की उपस्थिति।

क्र0 सं0	नाम	पदनाम/विभाग का नाम	हस्ताक्षर
1	Ranjishwan Shama	ADM Dehradun	
2	Dr Deepak Raini	SDM Mussoorie	
3	Uday Gaur	SOPD Mussoorie	
4	R.K. Pal	AE Provincial Division PWD Mussoorie	 27/5/24
5	S.K. Dima	ASO, UKPCB D-DUM	
6	Aniket Thapliyal	TA, Geology, DCM, DDon	
7	Ashish Prakash	Geologist, GSI	 27/5/24
8	Dr. Ruchika Pandey	Senior Geologist UMMC	 27 May 24
9	Dr. Kamini Bisht	Asst. Geologist, DCM, Dehradun	 27/05/2024
10	Lokendra Kumar	Inspector Div-Vikas Nagar	 27/5/24
11	R.S. Guesan	E E Irrigation Vikas Nagar	
12	S.K. Tripathi	Acting S.E., PWD Dehradun and EE, PD, PWD, Dehradun	
13.	Rajesh Nathani	E.O. NPP Mussoorie	
14.	S.P. Gairde	Range Officer Mussoorie	



 **कार्यालय प्रभागीय वनाधिकारी, मसूरी वन प्रभाग, मसूरी।**

दूरभाष एवं फ़ैक्स नं०-0135-2631765, ई-मेल dfo_mussoorie@rediffmail.com

पत्रांक-529/3-2 दिनांक: मसूरी, 13 अगस्त, 2024

सेवा में,

वन संरक्षक,
यमुना वृत्त,
उत्तराखण्ड देहरादून।

विषय:- मा० राष्ट्रीय हरित प्राधिकरण में योजित मूल आवेदन संख्या-51/2023 Suo Moto in Re: News Item Published In The Tribune Dated 16 January 2023 Titled Joshimath Disaster A Warning For Mussoorie के सम्बन्ध में।


सन्दर्भ:- इस कार्यालय का पत्रांक-494/3-2 दिनांक 07-08-2024

महोदया,

उपरोक्त विषयक सन्दर्भित पत्र के क्रम में इस वन प्रभाग द्वारा मा० राष्ट्रीय हरित प्राधिकरण में योजित मूल आवेदन संख्या-51/2023 Suo Moto in Re: News Item Published In The Tribune Dated 16 January 2023 Titled Joshimath Disaster A Warning For Mussoorie के सम्बन्ध में दिये गये निर्देशों के क्रम में इस वन प्रभाग द्वारा त्रुटिवश बिन्दु संख्या-6 की जगह बिन्दु सं०-2 लिखा गया था। पुनः उक्त को संशोधन करते हुये बिन्दु सं०-6 में दिये गये निर्देशों के अनुपालन में प्रभाग द्वारा Degradable Slopes in Mussoorie and suggestive remedial measures के हेतु चयनित मोटीधार क०सं०-5 बी का प्रस्ताव/प्राक्कलन तैयार कर आपकी सेवा में इस अनुरोध के साथ प्रेषित कि उक्त प्रस्तावों में अपनी संस्तुति संहित उच्च स्तर को प्रेषित करने की कृपा करें।

संलग्नक:- उपरोक्तानुसार।


भवदीय,


(अमित कवर भा.व.से.)
प्रभागीय वनाधिकारी,
मसूरी वन प्रभाग, मसूरी।

पत्रांक _____ / तददिनांकित।

प्रतिलिपि:-निमलिखित की सेवा में सादर सूचनार्थ प्रेषित-

- 1- प्रमुख वन संरक्षक/मुख्य कार्यकारी अधिकारी, उत्तराखण्ड कैम्पा।
- 2- अपर प्रमुख वन संरक्षक, पर्यावरण, उत्तराखण्ड देहरादून।
- 3- अपर प्रमुख वन संरक्षक, गढवाल उत्तराखण्ड पौड़ी।


(अमित कवर भा.व.से.)
प्रभागीय वनाधिकारी,
मसूरी वन प्रभाग, मसूरी।

LAND SLIDE AREA
MUSSOORIE FOREST DIVISION



JOSHIMATH DISASTER A WAENING FOR MUSSOORIE

SITE NAME-MOTIDHAR-5B 1ST & 2ND

Cost-124.00 (Lakhs)

The Joshimath disaster refers to a series of land subsidence events in the town of Joshimath, Uttarakhand, India. The area has experienced gradual sinking and cracking of buildings and infrastructure, exacerbated by natural and anthropogenic factors. This includes heavy construction, unregulated development, and seismic activities. The situation has raised significant concerns about the safety and sustainability of development in ecologically sensitive regions like the Himalayas.

Mussoorie Project Introduction:-

In the context of Mussoorie, another popular hill station in Uttarakhand, several projects aim to address similar concerns of environmental sustainability and disaster preparedness:

1. Sustainable Development Initiatives:- Projects focus on ensuring that development in Mussoorie is carried out sustainably, taking into account the fragile ecology of the region. This includes regulated construction practices, improved waste management, and measures to prevent deforestation and soil erosion.

- 2. Disaster Management Plans:-** Initiatives to create robust disaster management plans that include early warning systems, evacuation plans, and community awareness programs. These plans are critical in regions prone to landslides, earthquakes, and other natural disasters.
- 3. Infrastructure Improvements:-** Upgrading existing infrastructure to be more resilient to natural disasters. This involves retrofitting buildings to withstand earthquakes, improving drainage systems to prevent flooding, and constructing safer roads and bridges.
- 4. Environmental Conservation Efforts:-** Projects aimed at conserving the local flora and fauna, protecting water sources, and maintaining the natural beauty of the region. This can involve reforestation projects, protection of springs and rivers, and eco-tourism initiatives.

5. Community Involvement:- Engaging the local community in planning and implementing these projects, ensuring that their needs and knowledge are incorporated into sustainable development strategies.

The goal of these projects is to ensure that Mussoorie can continue to thrive as a tourist destination and residential area while preserving its natural environment and mitigating the risks of disasters similar to the Joshimath incident.

Site Maps

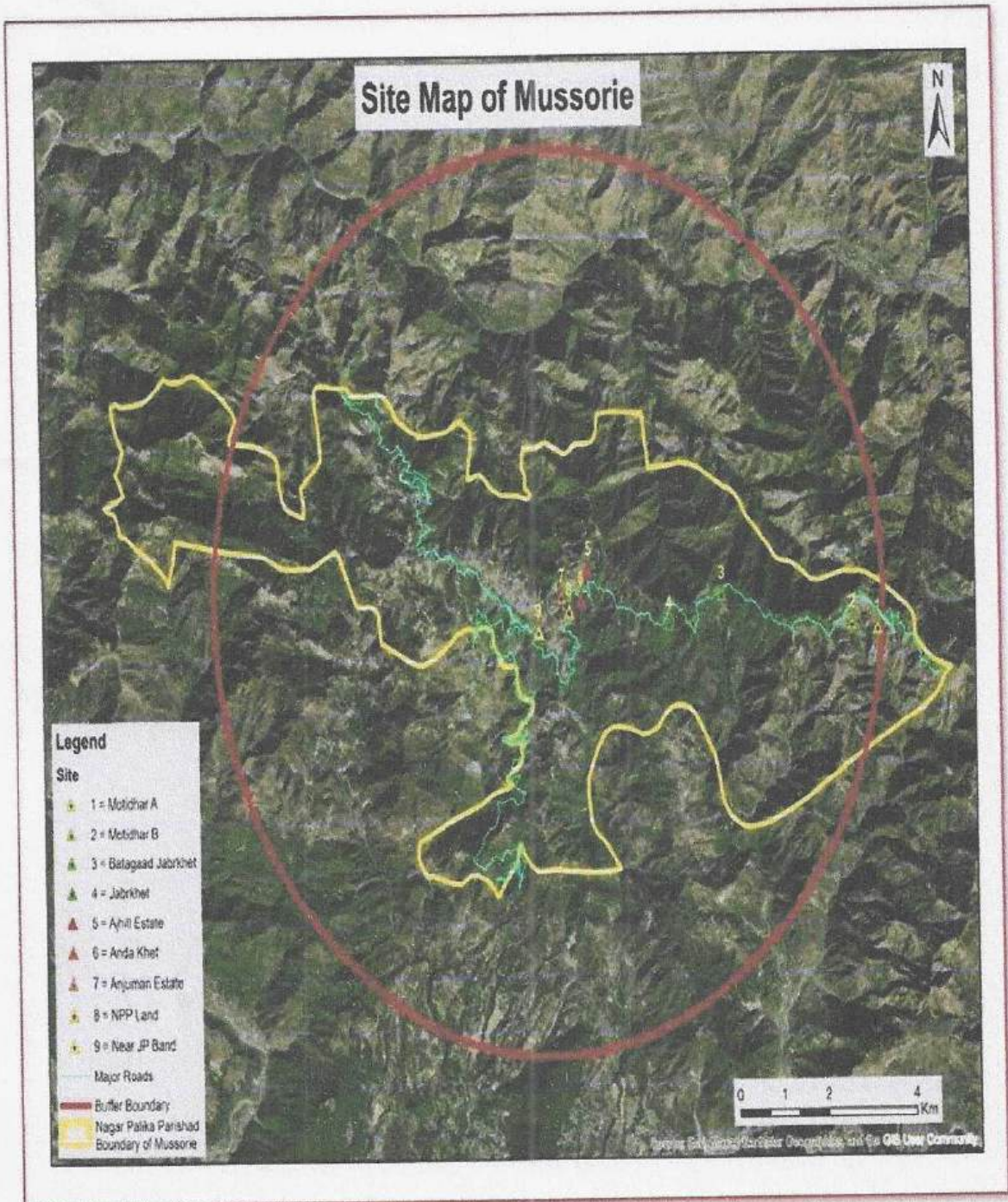
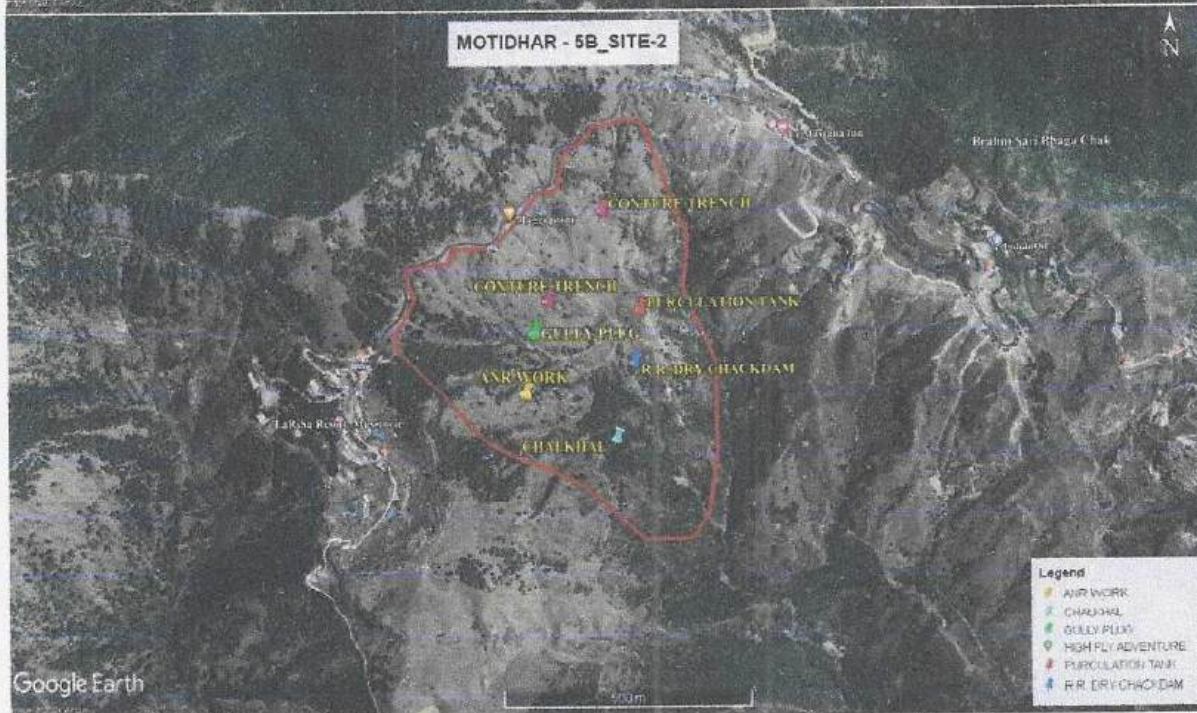
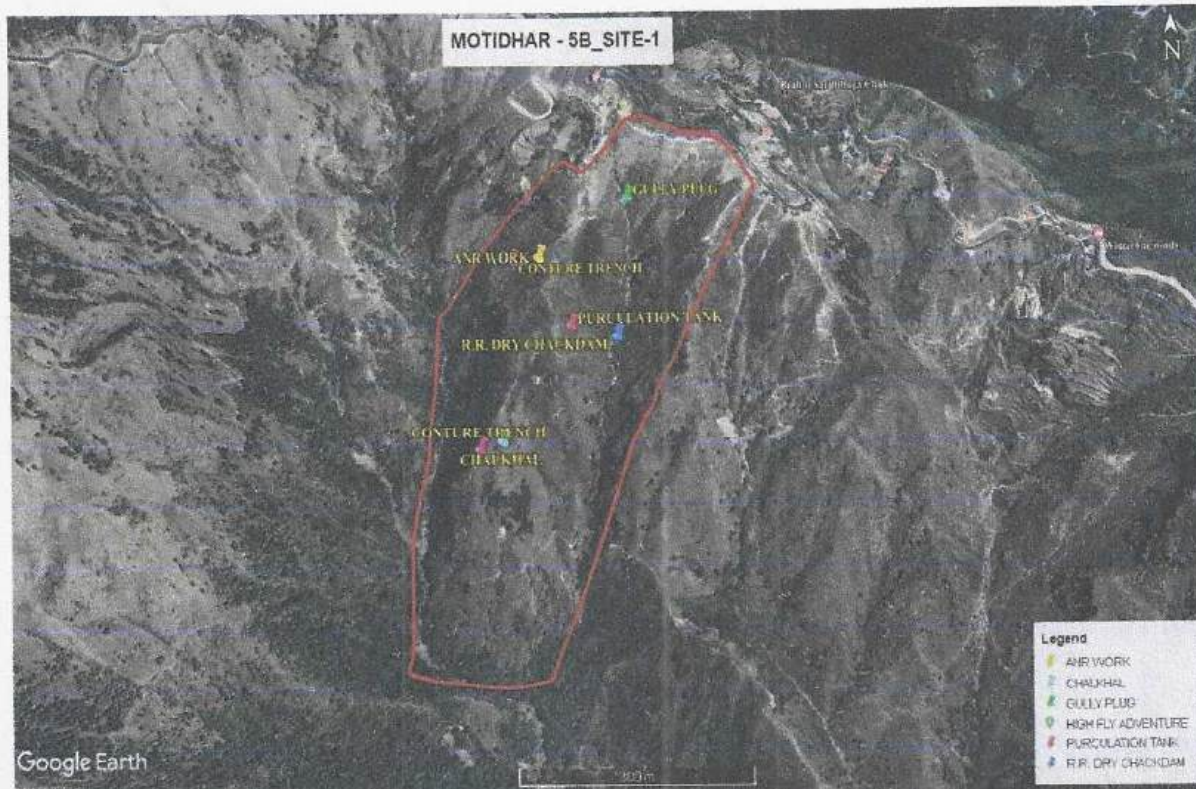


Figure 1 Location of selected sites of degradable slopes in Mussorie



Site Images

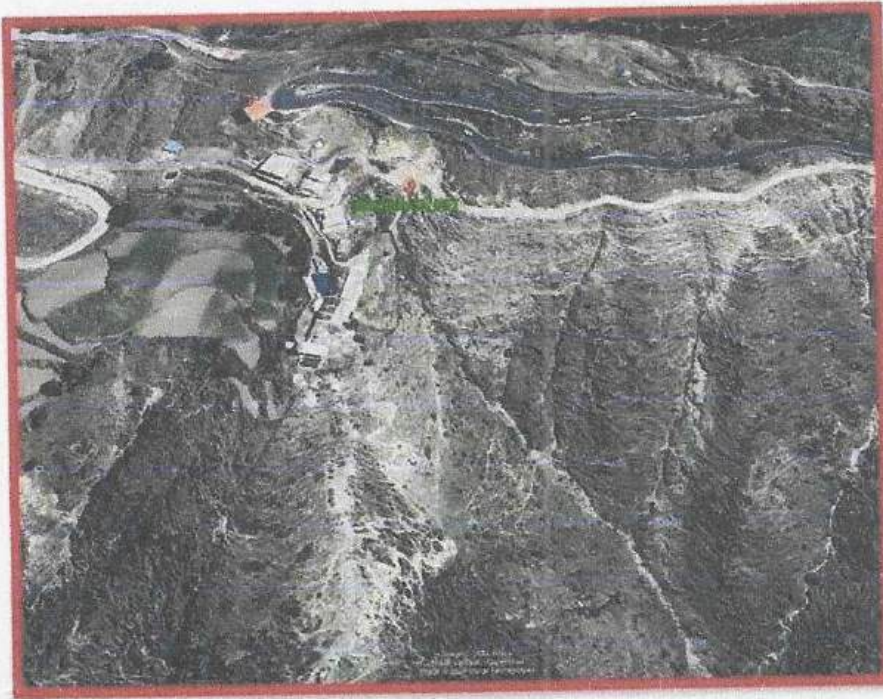


Figure 2: Google view of Site 1



Figure 3: Photo exhibiting Erosional features along developing seasonal rivulet



4: Google view of Site 2 showing wide valley, many seasonal rivulets and erosional/depositional environment



Project Summary of Cost

परियोजना का नाम— मसूरी रेंज के अन्तर्गत मोटीधार क0सं0 5(बी) प्रथम भाग एवं द्वितीय भाग के अन्तर्गत सू-संखलित क्षेत्रों में उपचार कार्य की डी0टी0आर0/डी0पी0आर0(मसूरी रेंज, मसूरी वन प्रभाग)

S. N	Division	Range	Beat	Work Place	Work detail	Unit	Unit Rate	1 st Year		2 nd Year		3 rd Year		Total	
								Phy	Financial	Phy	Financial	Phy	Financial	Phy.	Financial
1	मसूरी	मसूरी	मोटीधार बीट	मोटीधार क0सं0 5(बी), प्रथम	ए0एन0आर0 (प्रथम वर्ष)	Ha.	110600	12	1327200	10	1106000	0	0	22	2433200
					ए0एन0आर0 (द्वितीय वर्ष)	Ha.	19800	0	0	12	237600	10	198000	22	435600
					ए0एन0आर0 (तृतीय वर्ष)	Ha.	13970	0	0	0	0	12	167640	12	167640
					आर0आर0 ड्राई चैकडैम (5.00x1.20Mt)	No	21020	10	210200	8	168160	8	168160	26	546520
					वायरकैट चैकडैम(6 Mt.)	No	42740	15	641100	10	427400	8	341920	33	1410420
					गली प्लग (2x1 Mt.)	No	3100	12	37200	10	31000	8	24800	30	93000
					चाल-खाल (5x4 Mt.)	No	10500	6	63000	4	42000	4	42000	14	147000
					कन्सू ट्रेच (3x0.45x0.30)	No	165	150	247500	100	165000	101	166650	3510	579150
					परकुलेशन टैंक निर्माण	No	12000	6	72000	4	48000	4	48000	14	168000
Total								156	259820	105	222516	106	115717	3683	5980530
अन्य आकस्मिक व्यय 2 प्रतिशत—									51964		44503		23143		119611
कुल योग—									2650164		2269663		1180313		6100141
Amount in Lakh Rs.									26.50		22.69		11.80		61.00
S. N	Division	Range	Beat	Work Place	Work detail	Unit	Unit Rate	1 st Year		2 nd Year		3 rd Year		Total	
								Phy	Financial	Phy	Financial	Phy	Financial	Phy.	Financial
1	मसूरी	मसूरी	मोटीधार बीट	मोटीधार क0सं0 5(बी), द्वितीय	ए0एन0आर0 (प्रथम वर्ष)	Ha	110600	12	1327200	10	1106000	0	0	22	2433200
					ए0एन0आर0 (द्वितीय वर्ष)	Ha	19800	0	0	12	237600	10	198000	22	435600
					ए0एन0आर0 (तृतीय वर्ष)	Ha	13970	0	0	0	0	12	167640	12	167640
					आर0आर0 ड्राई चैकडैम (5.00x1.20Mt)	No	21020	10	210200	10	210200	8	168160	28	588560
					वायरकैट चैकडैम(6 Mt.)	No	42740	18	769320	10	427400	8	341920	36	1538640
					गली प्लग (2x1 Mt.)	No	3100	12	37200	10	31000	8	24800	30	93000
					चाल-खाल (5x4 Mt.)	No	10500	6	63000	4	42000	4	42000	14	147000
					कन्सू ट्रेच (3x0.45x0.30)	No	165	150	247500	120	198000	970	160050	3670	605550
					परकुलेशन टैंक निर्माण	No	12000	6	72000	4	48000	4	48000	14	168000
Total								156	2726420	126	2300200	102	1150570	3848	6177190
अन्य आकस्मिक व्यय 2 प्रतिशत—									54528		46004		23011		123544
कुल योग—									2780948		2346204		1173581		6300734
Amount in Lakh Rs.									27.80		23.46		11.73		63.00
Grant Total									54.30		46.15		23.53		124.00


क्षेत्राधिकारी
मसूरी रेंज
मसूरी वन प्रभाग

उप प्रभागीय वनाधिकारी
(देहरादून)
मसूरी वन प्रभाग, मसूरी

प्रभागीय वनाधिकारी
मसूरी वन प्रभाग
मसूरी


Estimate										
परियोजना का नाम- जल स्रोत/गदरों के पुर्नजीवन हेतु										
डी0टी0आर0/डी0पी0आर0										
सहायतित प्राकृतिक पुर्नरोत्पादन (ए0एन0आर0) कार्य हेतु 1.00 है0 क्षेत्र का										
प्राक्कलन										
S. N.	Discription	Nos	L	W	H/D	Qty.	Rate	Item No.	Amount (Rs)	
प्रथम वर्ष										
1	सर्वेक्षण एवं सीमांकन कार्य और उपग्रह मानचित्र तैयार करना (प्रति है0 में 0.10 है0 के 5 प्लॉट, प्रत्येक प्लॉट 4 पिलरों से घिरा रहेगा)					1.00 Ha	238.00	प्रति	SOB CFY आर0/डी0पी0 4.1	238.00
2	जैव विविधता व पुर्नउत्पादन सर्वेक्षण					1.00 Ha	200.00	प्रति	CFY आर0/डी0पी0 4.2	200.00
3	साईड स्पेसिफिक प्लान (सेवे डिमाकेशन के0एम0एल0 फाईल तैयार करना, रूट स्टॉक की गणना कार्य, मृदा परीक्षण कार्य)					1.00 Ha	461.00	प्रति	CFY आर0/डी0पी0 4.3	461.00
4	फत्थरों की कुली दीवाल बनाना (ऊँ0 1.20 मी0, चौ0-आधार में 0.60 मी0 व टॉप 0.45 मी0 तथा 0.15 मी0 बुनियाद सहित) एवं (फत्थर एकत्र करने, दुलान व चिनाई हेतु सामग्री सहित) अथवा आवश्यकतानुसार तारबाड़ कार्य	150.00	-	-	1.20	94.50 Ha	681.00	प्रति	SOB CFY आर0/डी0पी0 4.4	64354.50
5	क्षेत्र की सफाई					1.00 Ha	1821.00	प्रति	CFY आर0/डी0पी0 4.5	1821.00
6	वृक्षों की सिंगलिंग कार्य					200 Plants	371.00	प्रति	CFY आर0/डी0पी0 4.6	742.00
7	प्राकृतिक पौधों की निराई/ गुड़ाई, मल्टिंग कार्य एवं थायला बंदी (दो बार)					200.00 Ha	5.81	प्रति	CFY आर0/डी0पी0 4.7	1162.00
8	कन्टूर फरों का खुदान कार्य, 67 फर प्र0है0, या (200 र0मी0 प्रति है0)		3.00	0.30	0.45	67 No	132.00	प्रति	CFY आर0/डी0पी0 4.8	8844.00
9	निरीक्षण बटिया का निर्माण					1.00 Ha	1261.00	प्रति	SOB CFY आर0/डी0पी0 4.9	1261.00
10	अग्रिम मृदा कार्य		0.30	0.30	0.45	200 No	13.00	प्रति	SOB CFY आर0/डी0पी0 4.10	2600.00
11	पौध की कीमत (प्रथम वर्ष)					200 Plants	19.67	प्रति	CFY आर0/डी0पी0 4.11	3934.00
12	भूमि एवं जल संरक्षण कार्य					1.00 Ha	11500.00	प्रति	CFY आर0/डी0पी0 4.12	11500.00
13	खाद एवं रसायन					200 Plants	1.55	प्रति	CFY आर0/डी0पी0 4.13	310.00
14	देख रेख व रखरखाव रोपण वर्ष में 8 माह, (कम से कम 10 है0 पर					8 Month	988.00	प्रति	CFY आर0/डी0पी0 4.14	7904.00
									उप योग-	105331.50
15	मूल्यांकन एवं अभीलेखीकरण -					105331.50	x	0.50%	CFY आर0/डी0पी0 4.15	526.66
16	अन्य कटवामाण कार्य					105331.50	x	0.50%	CFY आर0/डी0पी0 4.16	526.66



अनाधिकारी
मसूरी रेंज
मसूरी वन प्रभाग



उप प्रभागीय वनाधिकारी
(देहरादून)
मसूरी वन प्रभाग, मसूरी


प्रभागीय वनाधिकारी
मसूरी वन प्रभाग
मसूरी

17	वृक्षारोपण क्षेत्र की निगरानी एवं निरीक्षण हेतु वाहन किराया, रख-रखाव इंधन व अन्य पर व्यय				105331.50	X	1%	-	CFY अनुस. 4.16	1053.32	
18	कार्यालय व्यय- स्टेशनरी हार्डवेयर / सापटवेयर-				105331.50	X	1%	-	CFY अनुस. 4.17	1053.32	
19	अन्य आकस्मिक व्यय-				105331.50	X	2%	-	CFY अनुस. 4.18	2106.63	
उप योग-										5266.59	
प्रथम वर्ष का योग-										110598.09	
या रू०-										110600.00	
ए०एन०आर०- द्वितीय वर्ष											
1	गड़ढा भरान कार्य			0.30	0.30	0.45	200 No	2.35	प्रति	CFY अनुस. 4.1.2	470.00
2	पौधों की कीमत द्वितीय वर्ष			-	-	-	200 Plants	4.14	प्रति	CFY अनुस. 4.1.3	828.00
3	पौध बुलान कार्य-			-	-	-	200 Plants	13.67	प्रति	CFY अनुस. 4.1.4	2734.00
4	पौध रोपण व थांवलान्दी			-	-	-	200 Plants	4.42	प्रति	CFY अनुस. 4.1.5	884.00
5	फरों में बीज बुआन व भरान कार्य			3.00	0.30	0.45	67 Far	10.00	प्रति	CFY अनुस. 4.1.6	670.00
6	रोपित पौधों की निराई, गुड़ाई एवं मलियग कार्य			-	-	-	200 Plants	5.81	प्रति	CFY अनुस. 4.1.7	1162.00
7	सुरक्षा घोरबाड के बाहर चारों ओर 5 मी० चौड़ी पट्टी में आग से सुरक्षा हेतु सफाई करना			-	-	-	1.00 Ha	292.00	प्रति	CFY अनुस. 4.1.8	292.00
8	देखरेख (12 माह) (10 है० आधार मानकर)			-	-	-	12 Month	988.00	प्रति	CFY अनुस. 4.1.9	11856.00
उप योग-										18896.00	
9	मूल्यांकन एवं अभीलेखीकरण -			18896.00			X	0.50%	-	SOB CFE अनुस. 4.1.10	94.48
10	श्रम कल्याण कार्य			18896.00			X	0.50%	-	CFY अनुस. 4.1.11	94.48
11	वृक्षारोपण क्षेत्र की निगरानी एवं निरीक्षण हेतु वाहन किराया, रख-रखाव इंधन व न्य पर व्यय-			18896.00			X	1%	-	CFY अनुस. 4.1.12	188.96
12	कार्यालय व्यय- स्टेशनरी हार्डवेयर / सापटवेयर-			18896.00			X	1%	-	CFY अनुस. 4.1.13	188.96
13	अन्य आकस्मिक व्यय-			18896.00			X	2%	-	CFY अनुस. 4.1.14	377.92
उप योग-										944.80	
द्वितीय वर्ष का योग-										19840.80	
या रू०-										19800.00	



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तृतीय वर्ष							
1	रोपित पौधों की निराई, गुड़ाई एवं मल्लिंग काय दो बार	200 Plants	5.81	प्रति	CFY अनुसू. 4.2.1	1162.00	
2	सुरक्षा घोरबाड के बाहर चारों ओर 5 मी० चौड़ी पट्टी में आग से सुरक्षा हेतु सफाई करना	1.00 Ha	292.00	प्रति	SGR CFY अनुसू. 4.2.2	292.00	
3	देखरेख (12 माह) (10 है० आधार मानकर)	12 Month	988.00	प्रति	CFY अनुसू. 4.2.3	11856.00	
उप योग-						13310.00	
4	मूल्यांकन एवं अभीलेखीकरण -	13310.00	x	0.50%	-	CFY अनुसू. 4.2.4	66.55
5	श्रम कल्याण कार्य	13310.00	x	0.50%	-	CFY अनुसू. 4.2.5	66.55
6	वृक्षारोपण क्षेत्र की निगरानी एवं निरीक्षण हेतु वाहन किराया, रख-रखाव इंधन व न्य पर व्यय	13310.00	x	1%	-	CFY अनुसू. 4.2.6	133.10
7	कार्यालय व्यय- स्टेशनरी हाईवेयर / साफ्टवेयर-	13310.00	x	1%	-	CFY अनुसू. 4.2.7	133.10
8	अन्य आकस्मिक व्यय-	13310.00	x	2%	-	CFY अनुसू. 4.2.8	266.20
उप योग-						665.50	
तृतीय वर्ष का योग-						13975.50	
या रू०-						13970.00	
तीन वर्ष का योग-						144370.00	


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Estimate												
आर०आर० ड्राई चैकडेम (Size- Length 5.00 Mt.) निर्माण कार्य करना												
S. N.	Description	Nos	L	W	H/D	Qty.	Unit	Rate		Amount (Rs)		
आर०आर० ड्राई चैकडेम निर्माण कार्य-												
1	स्थल की सफाई करना एवं चिन्हीकरण कार्य	1	x	1	6.00	3.25		19.50	Sqm	38.00	SOR CFY 4.1	741.00
2	आर०आर० ड्राई चैक डेम निर्माण हेतु बुनियाद खदान करना	1	x	1	5.00	1.25	0.50	3.13	cum	325.00	SOR CFY 4.2	1017.25
3	आर०आर० ड्राई चैक डेम निर्माण हेतु पत्थरों की चिनाई करना											
	बुनियाद में	1	x	1	5.00	1.25	0.50	3.13	cum			
	सुपर स्ट्रक्चर प्रथम भाग में	1	x	1	6.00	$\frac{(1.0+0.75)}{2}$	1.20	6.30	cum			
	हडवाल निर्माण	1	x	2	3.00	$\frac{(0.60+0.50)}{2}$	0.50	1.65	cum		SOR CFY 4.3, 4.5	19268.12
	Total							11.08	Sqm	1739.00		21026.37
कुल योग-												
या रू०-												
21020.00												
Rate Analysis for one cum masonry Mussoorie Range, Mussoorie Forest Division Cartage of Stones from 1 Km. distance												
1	कोरे पत्थरों की दीवाल चिनाई कार्य मय पत्थरों की कीमत											859.00
2	100 मीटर के बाद 500 मीटर तक		80%	31	x	1	x	20				496.00
3	500 मीटर के बाद		60%	16	x	2	x	20				384.00
Total												
1739.00												
Certified that the above leads are correct to the best of my knowledge and materials are not available at the shorter distances than the above mentioned distances.												


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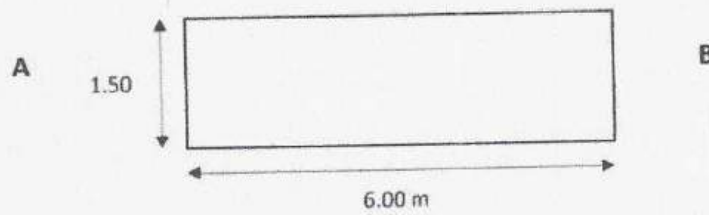
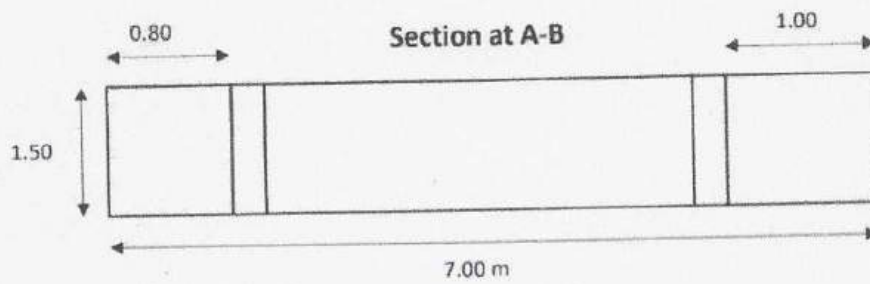
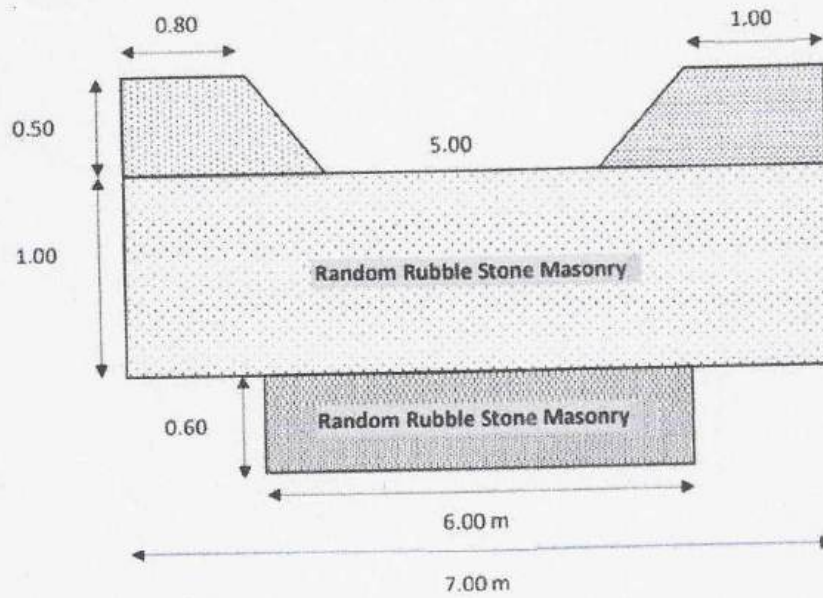


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Diagram of R.R. Dry Check Dam (6.00 Mt.) (Not to scale)



Estimate										
वायरकेट चैकडेम (Size- Length 6.00 Mt.) निर्माण कार्य करना										
S. N.	Description	Nos	L	W	H/D	Qty.	Unit	Rate	Item No	Amount (Rs.)
1	वायरकेट हेतु बुनियाद खुदाय कार्य	1 x 1	5.00	1.75	0.60	5.25	cum	325.00	SOR CFY 4.2	1706.25
2	आर0आर0 ड्राई पत्थरों की चिनाई कार्य जी0आई0 तार जाल के अन्दर-									
	बुनियाद में मय एग्रिम	1 x 1	5.00	1.75	0.60	5.25	cum			
	सुपर स्ट्रक्चर में	1 x 1	6.00	1.50	1.00	9.00	cum			
	हेड वाल	1 x 2	(1.0+0.8) 2	1.50	0.50	1.35	cum		SOR CFY 4.3, 4.5	
	Total					15.60	cum	1739.00		27128.40
3	तार की मात्रा- वायर केट हेतु- बुनियाद में-									
	ऊपर + नीचे	1 x 2	5.00	1.75		17.50	Sqm			
	आगे + पीछे	1 x 2	5.00		0.60	6.00	Sqm			
	साईड में	1 x 2	1.75		0.60	2.10	Sqm			
	सुपर स्ट्रक्चर में-									
	ऊपर + नीचे	1 x 2	6.00	1.50		18.00	Sqm			
	आगे + पीछे	1 x 2	6.00		1.00	12.00	Sqm			
	साईड में	1 x 2	1.50		1.00	3.00	Sqm			
	हेड वाल में-									
	ऊपर + नीचे	1 x 2	(1.0+0.8) 2	1.50		2.70	Sqm			
	आगे + पीछे	1 x 2	(1.0+0.8) 2		0.50	0.90	Sqm			
	साईड में	1 x 2	1.50		0.50	1.50	Sqm			
	Total					63.70	Sqm			
	ओवर लेपिंग 10 प्रतिशत					6.37	Sqm			
	कुल तार की मात्रा					70.07	Sqm			
	जी0आई0 बना हुआ तार कय करना, (15 x 15 Cm. (8 gauge)					70.07	Sqm	149.00	SOR CFY 4.5B)	10440.43
	कुल तार की मात्रा					70.07	Sqm	836%	SOR CFY 4.7	585.79
4	जालीदार तार को काटना, बांधना व फैलाना आदि कार्य							1000.00	LS	1000.00
5	जी0आई0 तार का दुलान रोड हेड से कार्य स्थल तक									
	कुल योग-									40860.87
	मद संख्या-3 में जी0आई0 बना हुआ तार पर 18 प्रतिशत जी0एस0टी0									1879.28
	कुल योग-									42740.15
	या रू0-									42740.00
Rate Analysis for one cum masonry, Devalsari Range, Mussoorie Forest Division										
Cartage of Stones from 1 Km. distance										
1	कोरे पत्थरों की दीवाल चिनाई कार्य मय पत्थरों की कीमत									859.00
2	100 मीटर के बाद 500 मीटर तक		80%	31	x	1	x	20		496.00
3	500 मीटर के बाद		60%	16	x	2	x	20		384.00
	Total									1739.00


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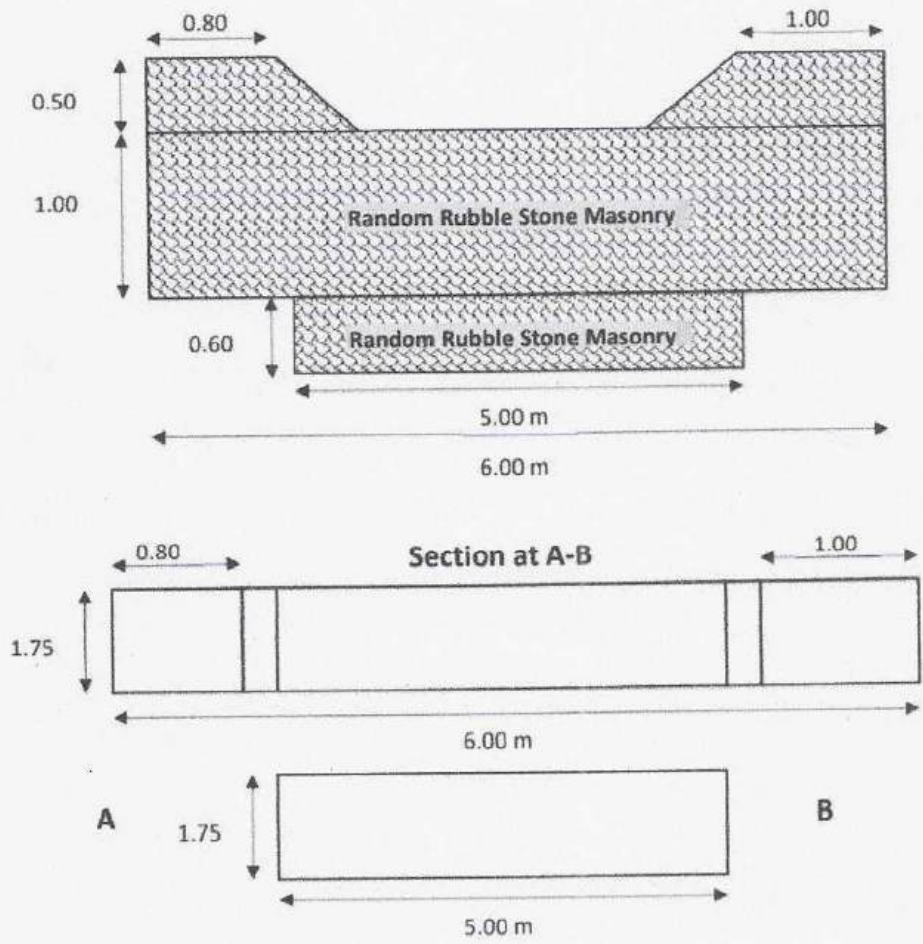

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Diagram of Crate Wire Check Dam (6 Mt. Lanth) (Not to scale)



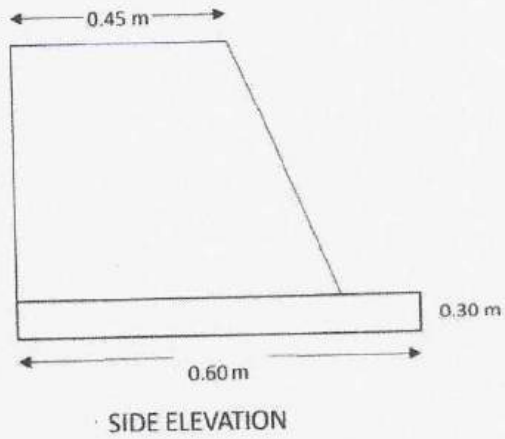
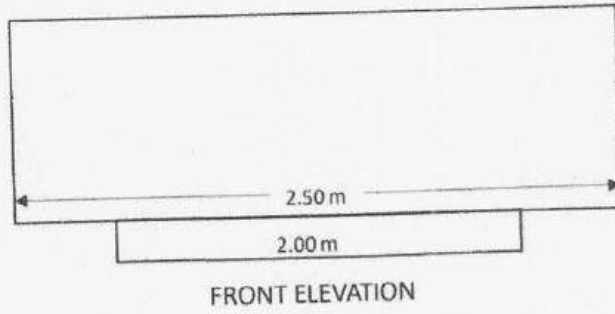
Estimate												
गली प्लग (Size- Length 2.00, Hight 1.00) निर्माण कार्य करना												
S. N.	Discription	Nos	L	W	H/D	Qty.	Unit	Rate	Item No	Amount (Rs)		
1	गली प्लग निर्माण हेतु स्थल की सफाई करना	1	x 1	3.00		0.80		2.40	Sqm	38.00	91.00	
2	गली प्लग निर्माण हेतु बुनियाद खुदान कार्य	1	x 1	2.00		0.60	0.30	0.36	cum	325.00	117.00	
3	आर0आर0 ड्राई पत्थरों की चिनाई कार्य-											
	बुनियाद में	1	x 1	2.00		0.60	0.30	0.36	cum			
	सुपर स्ट्रक्चर में	1	x 1	2.50	$\frac{0.6+0.45}{2}$	1.00		1.31	cum			
Total									1.67	Sqm	1739.00	2904.13
कुल योग-										3112.13		
या रू0-										3100.00		
Rate Analysis for one cum masonry, Mussoorie Range, Mussoorie Forest Division												
Cartage of Stones from 1 Km. distance												
1	कोरे पत्थरों की दीवाल चिनाई कार्य मय पत्थरों की कीमत									859.00		
2	100 मीटर के बाद 500 मीटर तक	80%	31	x	1	x	20			496.00		
3	500 मीटर के बाद	60%	16	x	2	x	20			384.00		
Total										1739.00		
Certified that the above leads are correct to the best of my knowledge and materials are not available at the shorter distances than the above mentioned distances.												

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Diagram for Gully Plug (Not to scale)



Estimate									
चाल-खाल (Size- 5.00x4.00 Mt.) निर्माण कार्य करना									
S. N.	Discription	Nos	L	W	H/D	Qty.	Unit	Rate	Amount (Rs)
चालखाल निर्माण कार्य-									
1	चाल-खाल निर्माण हेतु स्थल की सफाई करना	1 x 1	6.00	5.00		30.00	Sqm	38.00	SOR CFY 4.1 1140.00
2 चाल-खाल हेतु भूमि खुदान, कटान कार्य-									
	मिट्टी, पत्थर कटान कर स्थल समतलीकरण करना	1 x 1	5.00	4.00	(0+0.9) 2	9.00	cum		
	मिट्टी, पत्थर कटान कर गड्ढा खोदना	1 x 1	5.00	4.00	1.00	20.00	cum		
					Total	29.00	cum	325.00	SOR CFY 4.2 9425.00
कुल योग-									10565.00
या रू०-									10500.00

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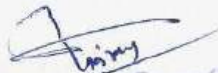

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Diagram for Chal Khal (Size 5.00x4.00x1.00 Mt.) (Not to scale)



Estimate									
कन्दूर ट्रेंच निर्माण कार्य करना									
S. N.	Discription	Nos	L	W	H/D	Qty.	Unit	Rate	Amount (Rs)
1	जल स्रोत के ऊपरी भाग में नाले के दोनों ओर कन्दूर फरों का खुदान करना-								
2	कन्दूर ट्रेंच का रेखांकन कार्य घूने की कीमत सहित		3.00	0.45	0.30	1	फर	137.00	1.37
3	कन्दूर फरों का खुदान,		3.00	0.45	0.30	1	फर	132.00	132.00
4	कन्दूर ट्रेंच में खाद मिलाकर नाली को भू-तल से 20 सेमी० ऊपर उठाकर भरान करना		3.00	0.45	0.30	1	फर	10.00	10.00
5	कन्दूर ट्रेंच में बीज बुआन कार्य (रमी०में)		-	-	-	1	फर	10.00	10.00
6	अन्य पकीर्ण व्यय		3.00	0.45	0.30	0.01	हे०	1152.00	11.52
Total									164.89
या रू०-									165.00

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Estimate										
परकुलेशन टैंक निर्माण कार्य करना										
S. N.	Discription	Nos	L	W	H/D	Qty.		Rate	Item No.	Amount (Rs)
1	परकुलेशन टैंक / रिचार्ज पिट निर्माण हेतु स्थल सफाई कार्य करना	1	5.00	4.00		20.00	Sqm	38.00	SOR CFY 4.1	760.00
2	हेतु भूमि खदान, कटान कार्य- स्थल समतलीकरण करना	1	4.00	3.00	$\frac{10+1.70}{2}$	9.90	cum			
	गड़ढा खोदना	1	4.00	3.00	1.20	14.40	cum			
					Total	24.30	cum	325.00	SOR CFY 4.2	7897.50
3	बुनियाद में आर0आर0 ड्राई पत्थरों का खडंजा कार्य करना	1	4.00	3.00	0.20	2.40	cum	1739.00	SOR CFY 4.3, 4.5	4173.60
कुल योग-										12071.10
या रू0-										12000.00
Rate Analysis for one cum masonry, Mussoorie Range, Mussoorie Forest Division										
Cartage of Stones from 1 Km. distance										
1	कोरे पत्थरों की दीवाल चिनाई कार्य मय पत्थरों की कीमत									859.00
2	100 मीटर के बाद 500 मीटर तक		80%	31	x	1	x	20		496.00
3	500 मीटर के बाद		60%	16	x	2	x	20		384.00
Total										1739.00
Certified that the above leads are correct to the best of my knowledge and materials are not available at the shorter distances than the above mentioned distances.										

उप प्रभानीय वनाधिकारी
(देहरादून)
मसूरी वन प्रभाग, मसूरी

प्रभागीय वनाधिकारी
मसूरी वन प्रभाग
मसूरी

वन क्षेत्राधिकारी
मसूरी रेंज
मसूरी वन प्रभाग

Diagram for Percolation Tank 4.00x3.00x1.00 Mt. (Not to scale)



UTTARAKHAND PEYJAL NIGAM

**Actual Photographs of
Mussoorie Reorganization Water Supply Scheme**



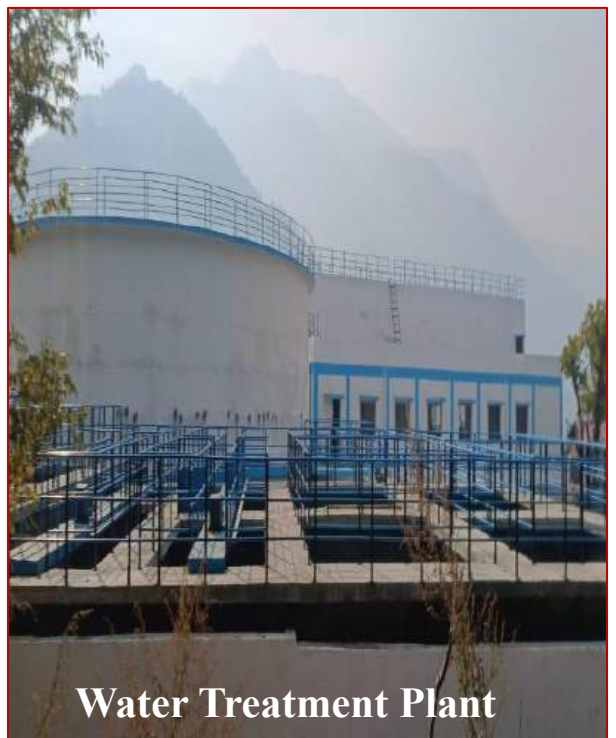
Intake Well



Intermediate Pumping Station



Intermediate Pumping



Water Treatment Plant

रतनालीगाड जल स्रोत उपकरण 585 तु चाल-खाल निर्माण कार्य



रतनालीगाड जल स्रोत में कन्टूर ट्रेंच निर्माण कार्य

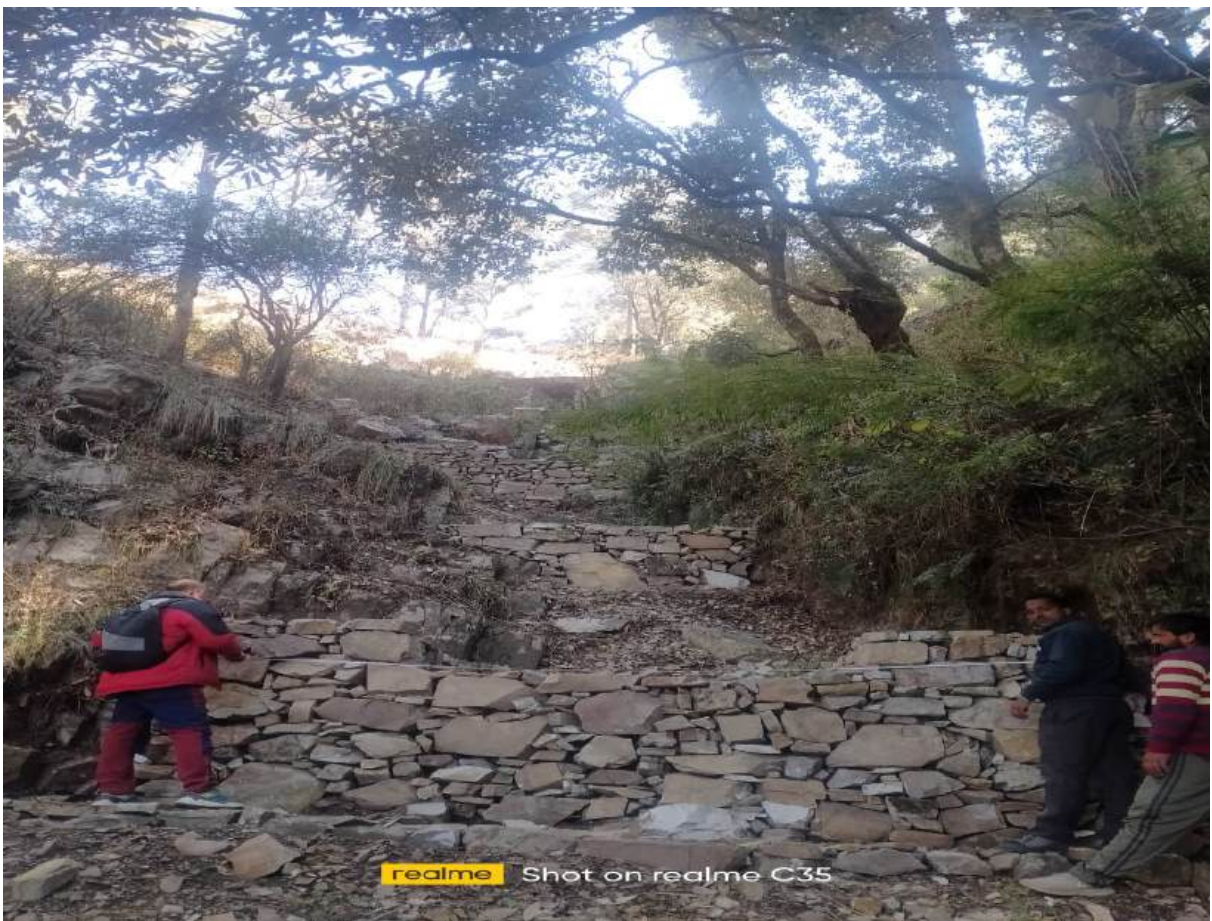
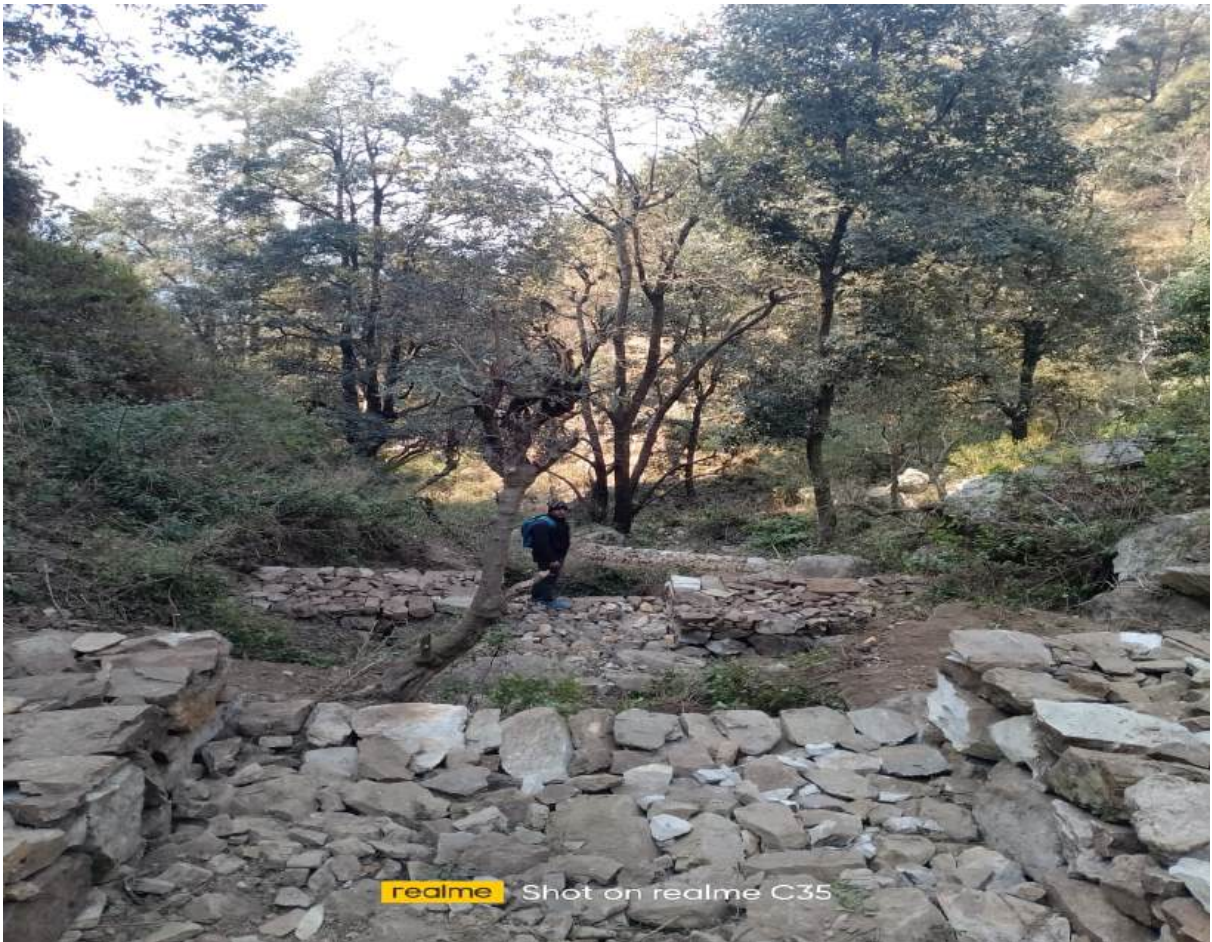


Mussoorie Forest Division, Mussoorie

जलस्रोत उपचार हेतु 586 कडेम निर्माण कार्य



जलस्रोत 587 धार कार्य





रतनालीगाड जल 589 में पौध रोपण कार्य



चिड़तोला जल स्रोत 590 वृक्षारोपण कार्य



चिड़तोला जल स्रोत में वृक्षारोपण कार्य





घडियाला जल स्रोतमें वृक्षारोपणकार्य के फोटोग्राफ







मसूरी देहरादून विकास प्राधिकरण

ट्रांसपोर्ट नगर, सहारनपुर रोड, देहरादून (उत्तराखण्ड)

भवन निर्माण एवं विकास उपविधि/विनियम-2011

(संशोधन 2015-2019)

उत्तराखण्ड

खण्ड 94

भवन निर्माण एवं विकास उपविधि / विनियम-2011
(संशोधन 2015-2019)

खण्ड- 2

हैबिटाट परियोजनाओं पर अनुज्ञा की प्रक्रिया

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परिशिष्ट

खण्ड- 4

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596

*मल्टीपल आवासीय ईकाई एवं 1000 वर्गमीटर से अधिक क्षेत्रफल के आवासीय/गैर आवासीय भवनों/ परिसरों में जल-मल निस्तारण हेतु मानचित्र स्वीकृति से पूर्व निम्न अपेक्षार्य प्राधिकरण/ स्वीकृति प्राधिकारी द्वारा सुनिश्चित की जायेगी।

- जहाँ सीवर लाईन उपलब्ध है वहाँ परियोजना की प्रस्तावित घनत्व अनुसार आंकलित डिजाईन लोड के सापेक्ष सीवर की क्षमता का आंकलन कर तत्सम्बन्धी विभाग से इस आशय की तकनीकी अनापत्ति आवश्यक होगी कि परियोजना से उत्पन्न का MLD जल-मल निस्तारण विद्यमान सीवर लाईन में किया जा सकता है व उक्त सीवर लाईन से परियोजना को सम्बद्ध करने हेतु अनापत्ति प्रदान की गई है।
- जहाँ परियोजना का जल-मल का उत्पाद सीवर लाईन क्षमता से अधिक हो अथवा जहाँ सीवर लाईन नहीं है वहाँ परियोजना अन्तर्गत आंकलित क्षमतानुसार Sewerage Treatment Plant स्थापित किया जाये व treated sewage के निस्तारण के सम्बन्ध में स्पष्ट योजना प्रस्तुत की जाय। ऐसी परियोजनाओं में इस विषय में पूर्णतया प्रमाण-पत्र में भी सम्बन्धित विभाग की अनापत्ति/ संस्तुति आवश्यक होगी।

6.5 वर्षा जल संग्रहण मानक :

- (i) जलरोध की समस्या से ग्रस्त क्षेत्रों को छोड़ कर अन्य क्षेत्रों में विभिन्न भू-उपयोगों के अन्तर्गत ऐसे सभी अनुमत्य निर्माण कार्यों पर, जिनका भू-आच्छादन 125 वर्गमीटर या अधिक हो वर्षा जल संग्रहण का प्राविधान अनिवार्य होगा।
- (ii) वर्षा जल संग्रहण हेतु मानक का निर्धारण करते हुये 250 वर्गमीटर तक के आच्छादन पर न्यूनतम 2.0 घनमीटर रेन वाटर हारवेस्टिंग भण्डारण की व्यवस्था अनिवार्य होगी, जबकि इससे अधिक व 400 वर्गमीटर तक 3.5 घनमीटर तथा उसके उपरान्त प्रत्येक 50 वर्गमीटर अथवा उसके आंशिक भाग की आच्छादित वृद्धि पर न्यूनतम 0.5 घनमीटर अतिरिक्त की दर पर वर्षा जल भण्डारण का प्राविधान आवश्यक होगा।
- (iii) यदि 400 वर्गमीटर से अधिक के भूखण्ड पर बोर वेल/ रिचार्ज गड्ढा/ कुआ- हैण्ड पम्प/ ट्रेन्च द्वारा भूगर्ह रिचार्जिंग का प्राविधान किया जाता है तो उस स्थिति में उक्त मानक में निर्धारित गणना का एक तिहाई भाग भण्डारण हेतु रखना आवश्यक होगा।
- (iv) इसके प्रभावी क्रियान्वयन हेतु आन्तरिक वर्षा जल भण्डारण (रेन वाटर हारवेस्टिंग) के प्राविधान की पुष्टि, प्रश्नगत भवन मानचित्र में करने के उपरान्त ही सम्बन्धित अभिकरण द्वारा स्वीकृति सम्बन्धी कार्यवाही की जायेगी। इस प्रयोजनार्थ जल निकास एवं भण्डारण/ सम्मरण से सम्बन्धित निर्माण कार्यों के क्षेत्रफल को भूतल आच्छादन हेतु अनुमत्य क्षेत्रफल में शामिल नहीं किया जायेगा।

6.6 वेस्ट वाटर रिसाईक्लिंग

2.0 हैक्टेयर से अधिक की आवासीय परियोजनायें (ग्रुप हाउसिंग एवं उपविभाजन) तथा 2500 वर्गमीटर से अधिक के भूखण्डों में प्रस्तावित अनावासीय भवनों में वेस्ट वाटर / ग्रे-वाटर (रसोई एवं स्नानघर से एकत्रित वेस्ट वाटर) रिसाईक्लिंग का प्राविधान आवश्यक होगा। उक्त रिसाईक्लिड वेस्ट वाटर का प्रयोग केवल बागवानी हेतु किया जायेगा।

6.7 उर्जा प्रतीरक्षण (Energy Conservation)

*ECBC के compliance हेतु मानचित्र स्वीकृति पत्र में उल्लिखित होगा कि यदि 500 वर्गमीटर से अधिक क्षेत्र कन्डीशन्ड किया जाता है तो UREDA से अनापत्ति प्राप्त करना अनिवार्य होगा। अन्यथा मानचित्र अस्वीकृत माना जाएगा।

* राष्ट्रदेश संख्या-2013, दिनांक 08.12.2015 द्वारा संशोधित।

**UTTARAKHAND PEYJAL NIGAM
MUSSOORIE SEWERAGE SCHEME**



Actual site photographs of STP (Handed Over to Jal Sansthan) Mussoorie sewerage scheme



STP Kulri (0.90 MLD)



Happy Valley Zone (1.20 MLD)



Londour North (0.80 MLD)



Bhatta fall stp (3.12)

**Actual site photographs of STP (O&M by Peyjal Nigam)
Mussoorie sewerage scheme**



Londour South (1.30 MLD)

Actual site photographs of STP Under Construction Mussoorie Sewerage scheme



Bhiladu STP 1.10 MLD



Arcedia STP 0.70 MLD



Company Gardan STP 0.70 MLD



Dhobi Ghat STP 0.50 MLD

Uttarakhand Pollution Control Board

Performance Monitoring of STPs located in Mussoorie Area, District Dehradun

S.N o.	Name of the Sewage Treatment Plant (With Capacity)	Sampling Point						
		Inlet of STP			Outlet of STP			
		pH	BOD (mg/L)	TSS (mg/L)	pH	BOD (mg/L)	TSS (mg/L)	Fecal Coliform (MPN/100 ml)
January, 2024								
1	1.3 MLD STP at Landour (S), Mussoorie.	7.36	155	153	8.80	10.0	11	540
2	3.12 MLD STP at Bhatta fall, Mussoorie.	7.03	145	143	7.54	9.2	09	220
3	0.8 MLD STP at Landour (N), Mussoorie.	6.80	155	152	8.32	9.2	10	130
4	1.2 MLD STP at Happy Valley, Mussoorie.	6.84	175	177	7.89	8.8	09	170
5	0.9 MLD STP at Kurli Bazaar, Mussoorie.	6.65	180	182	7.98	9.2	11	170
February, 2024								
1	1.3 MLD STP at Landour (S), Mussoorie	6.71	150	147	7.11	9.2	10	350
2	3.12 MLD STP at Bhatta fall, Mussoorie.	6.62	140	136	7.30	8.8	08	110
3	0.8 MLD STP at Landour (N), Mussoorie	6.90	150	148	7.87	9.6	10	140
4	1.2 MLD STP at Happy Valley, Mussoorie.	7.13	170	173	7.48	9.2	10	130
5	0.9 MLD STP at Kurli Bazaar, Mussoorie.	6.95	185	189	7.78	10.0	13	280

March, 2024									
		Inlet of STP			Outlet of STP				
		pH	BOD	TSS	pH	BOD	TSS	COD	Fecal Coliform
1	1.3 MLD STP at Landour (S), Mussoorie	6.89	155	153	7.50	10.4	12		540
2	3.12 MLD STP at Bhatta fall, Mussoorie.	STP found closed and non – operational at the time of visit (Date of inspection – 04.03.2024)							
3	0.8 MLD STP at Landour (N), Mussoorie	6.80	145	142	7.35	10.0	11		210
4	1.2 MLD STP at Happy Valley, Mussoorie.	7.17	175	180	7.84	10.0	12		170
5	0.9 MLD STP at Kurli Bazaar, Mussoorie.	7.37	190	195	7.62	9.6	12		220
April, 2024									
1	1.3 MLD STP at Landour (S), Mussoorie	6.85	160	157	7.18	9.6	11	40	350
2	3.12 MLD STP at Bhatta fall, Mussoorie.	7.71	150	148	7.87	9.2	10	40	170
3	0.8 MLD STP at Landour (N), Mussoorie	6.94	150	146	7.28	9.2	10	30	140
4	1.2 MLD STP at Happy Valley, Mussoorie.	7.22	180	184	7.46	10.8	13	40	280
5	0.9 MLD STP at Kurli Bazaar, Mussoorie.	7.29	195	198	7.70	8.8	10	30	170

May, 2024									
		Inlet of STP			Outlet of STP				
		pH	BOD	TSS	pH	BOD	TSS	COD	Fecal Coliform
1	1.3 MLD STP at Landour (S), Mussoorie	6.96	170	168	7.35	9.2	10	40	220
2	3.12 MLD STP at Bhatta fall, Mussoorie.	7.48	160	156	7.70	8.4	08	30	94
3	0.8 MLD STP at Landour (N), Mussoorie	6.78	160	158	7.47	10.0	12	40	350
4	1.2 MLD STP at Happy Valley, Mussoorie.	7.35	190	195	7.62	11.6	15	50	350
5	0.9 MLD STP at Kurli Bazaar, Mussoorie.	7.15	200	205	7.49	10.0	13	40	280
June, 2024									
1	1.3 MLD STP at Landour (S), Mussoorie	7.65	155	160	7.82	8.0	09	30	170
2	3.12 MLD STP at Bhatta fall, Mussoorie.	7.54	150	160	7.66	10.0	08	30	140
3	0.8 MLD STP at Landour (N), Mussoorie	7.12	190	176	7.49	8.4	10	30	140
4	1.2 MLD STP at Happy Valley, Mussoorie.	7.39	155	165	7.53	10.0	09	40	220
5	0.9 MLD STP at Kurli Bazaar, Mussoorie.	7.66	180	173	7.93	9.6	10	40	170

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July, 2024									
		Inlet of STP			Outlet of STP				
		pH	BOD	TSS	pH	BOD	TSS	COD	Fecal Coliform
1	1.3 MLD STP at Landour (S), Mussoorie	7.20	165	169	7.63	8.8	10	40	140
2	3.12 MLD STP at Bhatta fall, Mussoorie.	7.39	155	161	7.85	9.6	10	40	210
3	0.8 MLD STP at Landour (N), Mussoorie	6.90	180	176	7.36	9.6	11	50	110
4	1.2 MLD STP at Happy Valley, Mussoorie.	7.18	170	178	7.70	9.6	11	50	280
5	0.9 MLD STP at Kurli Bazaar, Mussoorie.	7.40	190	195	7.80	10.0	12	50	210
August, 2024									
1	1.3 MLD STP at Landour (S), Mussoorie	STP found Non-operational because sewage line was damaged due to landslide. (Date of inspection: 13-08-2024).							
2	3.12 MLD STP at Bhatta fall, Mussoorie.	7.25	150	155	7.68	8.8	09	30	140
3	0.8 MLD STP at Landour (N), Mussoorie	6.97	175	178	7.50	10.0	12	50	170
4	1.2 MLD STP at Happy Valley, Mussoorie.	7.31	165	171	7.88	10.0	13	50	350
5	0.9 MLD STP at Kurli Bazaar, Mussoorie.	7.13	180	184	7.94	9.2	10	40	170
					pH	BOD	TSS	COD	Fecal Coliform
Sewage Treatment final effluent standards (As Notified by MoEF&CC).					6.5-9.0	30	<100	-	<1000
Sewage Treatment final effluent standards (As per Hon'ble NGT order).					5.5-9.0	10	20	50	230
Note: All values are in mg/l except pH, Fecal coliform (MPN Per 100 ml).									

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कार्यालय नगर पालिका परिषद , मसूरी ।

Annexure No. 11

दूरभाष न०-0135-2632251 फ़ैक्स न० -0135- 2632039

E-mail: nppmussoorie@gmail.com

Ref No.....1483/E.O.....

Date: 25.09.2024

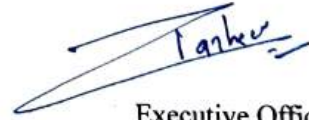
To,
The Additional Director,
Urban Development Directorate,
Dehradun

Subject: Regarding submission of Action Taken Report with respect to your letter no: 2814/890/SBM/NGT/O.A. No. 51 of 2023/2023

Respected Sir,

In response to your letter dated *September 9th, 2024* with reference no: *2814/890/SBM/NGT/O.A. No. 51 of 2023/2023*, we are hereby submitting our action taken report with respect to the point no 13, 14, 15 & 16 as per the NGT letter's Preventive and Remedial Measures.

We are sharing the report in draft word as well as PDF format, as requested by you. The report consists of brief about the actions taken along with supporting photographs as deemed necessary.



Executive Officer
Nagar Palika Parishad Mussoorie

अधिशसी अधिकारी
नगर पालिका परिषद, मसूरी

PREVENTIVE AND REMEDIAL MEASURES

13. The regulations related to waste management should be strictly followed. Dumping sites around water bodies should be strictly restricted to prevent pollution threats on the important sources of drinking water of the city. QR code based Digital Direct Refund System should be implemented for management of plastic waste. IEC activities to be promoted amongst visiting tourist towards solid waste and plastic waste management.

Actions taken with respect to compliance of point no. 13

S.No.	Action/Activity	Description
1	Compliance of Solid Waste Management Rules 2016 with specific reference to Rule 22	<p>On an average, around 15 – 18 TPD of total waste is generated in the ULB and processed.</p> <ul style="list-style-type: none"> • A Material Recovery Facility (MRF) of 20 TPD capacity established at IDH, Tehri Bypass Road • Waste is being processed as per the SWM Rules 2016 • The dry waste is being sorted and recyclable materials are recovered from the waste received at the plant • The weighing of waste received and processed is being recorded with the help of weighbridge with digital machines • A Bio-Methanation plant of 8 TPD capacity established at IDH, Tehri Bypass Road • Waste is being processed as per the SWM Rules 2016 • The organic kitchen/wet waste from bulk waste generators is being processed in the plant • The gas is being trapped and stored in the storage balloon • There is a provision to generate electricity from the stored gas
2	Restrictions of dumping of Solid Waste near the water bodies	<ul style="list-style-type: none"> • Nagar Palika Parishad Mussoorie frequently holds meetings & workshops with the Sanitary Inspectors and Supervisors to create awareness regarding prevention of dumping near the water bodies • The Executive Officer has instructed to check and penalize the offenders dumping waste near water bodies
3	Status of QR code based Digital Direct Refund System	<ul style="list-style-type: none"> • Meeting conducted with Stakeholders • In progress for further action
4	IEC Activities towards Solid and Plastic Waste Management	<ul style="list-style-type: none"> • Total 11 NOS awareness activities have been conducted towards awareness of Solid and Plastic Waste Management during the last month

- IEC report attached as Annexure-I



Photos of MRF Centre with Weighbridge

Lanhu



Photos of Bio-Methanation Plant with wet waste grinder and storage silos

Signature



Meeting with Supervisors and D2D collection staff regarding prevention of dumping waste in Water Bodies

14. Strict measures should be made to promote the usage of bio-degradable materials and ban on use of SUP should be strictly enforced.

Actions taken with respect to compliance of point no. 14

S.No	Action/Activity	Description
1	Special drives for enforcement of banned SUP items	<ul style="list-style-type: none"> • Nagar Palika Parishad Mussoorie conducts regular drives and inspections in all the wards • The Supervisors have been instructed to penalize the offenders • The action taken report is mentioned in the following table
2	Promotion of Bio-degradable alternatives of banned SUP items	<ul style="list-style-type: none"> • Citizens are being sensitized regarding use of Bio-degradable alternatives of banned SUP items • The street vendors and shops are sensitized regarding use of Bio-Degradable items and to encourage people towards using cloth bags • Nagar Palika Parishad Mussoorie has floated a tender for the establishment of cloth bag vending machines at Mall Road, Mussoorie
3	IEC Activities	<ul style="list-style-type: none"> • IEC activities are being conducted in collaboration with NGO Hilldary, D2D collection vendor and supervisors. Report attached as Annexure-1

Action taken in Plastic Waste Management

Inspection	Offenders	No. of Fines	Confiscation/Seized	Fine Amount	Awareness/Publicity Campaign
5793	330	330	42.70 KG	1,66,600/-	Hoardings, 4 Vehicles including Swacchata Rath

Tarkey

15. Local people should be involved in the Environmental Conservation programs and awareness /training on landslides, mountain risks etc. to be initiated.

Actions taken with respect to compliance of point no. 15

S.No.	Action/Activity	Description
1	IEC activities	<ul style="list-style-type: none"> Total 11 NOS awareness activities have been conducted towards awareness on landslides and mountain risks etc. The awareness programs were conducted along with the IEC of Solid and Plastic waste management. Report attached as Annexure-1

16. Registration of tourists should be done according to carrying capacity of the area, especially the available parking space, guest room availability, etc. Tourist can be charged for visiting the Mussoorie area and the payment can be utilized for managing waste and cleanliness.

Actions taken with respect to compliance of point no. 16

S.No.	Action/Activity	Description
1	Registration of tourists and provision of Eco Tax	<ul style="list-style-type: none"> Eco-tax is being levied from the tourist vehicles entering to Mussoorie by Nagar Palika Parishad, Mussoorie. Collected tax is being used for environment and tourism development activities of Mussoorie.

Tashu

Annexure-1

Date	Activity
14-08-2024	Awareness Drives on Schools
27-08-2024	Meeting regarding waste segregation in Hotel Portrait
17-09-2024	Awareness Drive through Swachhata Rath under Swachhata he seva campaign.
18-09-2024	IEC in Hotel – 4 way segregation & On-Site processing of wet waste
19-09-2024	MSW meeting - Sensitization on 3R, Domestic Bio-Medical & E-VWaste
20-09-2024	Household meeting
21-09-2024	Cleanliness drive at CT/PT
21-09-2024	Inspection of Mall Road – SDM Mam
22-09-2024	Swachhata he Seva – CTU at Sanatan Mandir Landour
23-09-2024	Swachhata he Seva – CTU at Clock Tower Parking
24-09-2024	Swachhata he Seva – CTU at Library Bus Stand





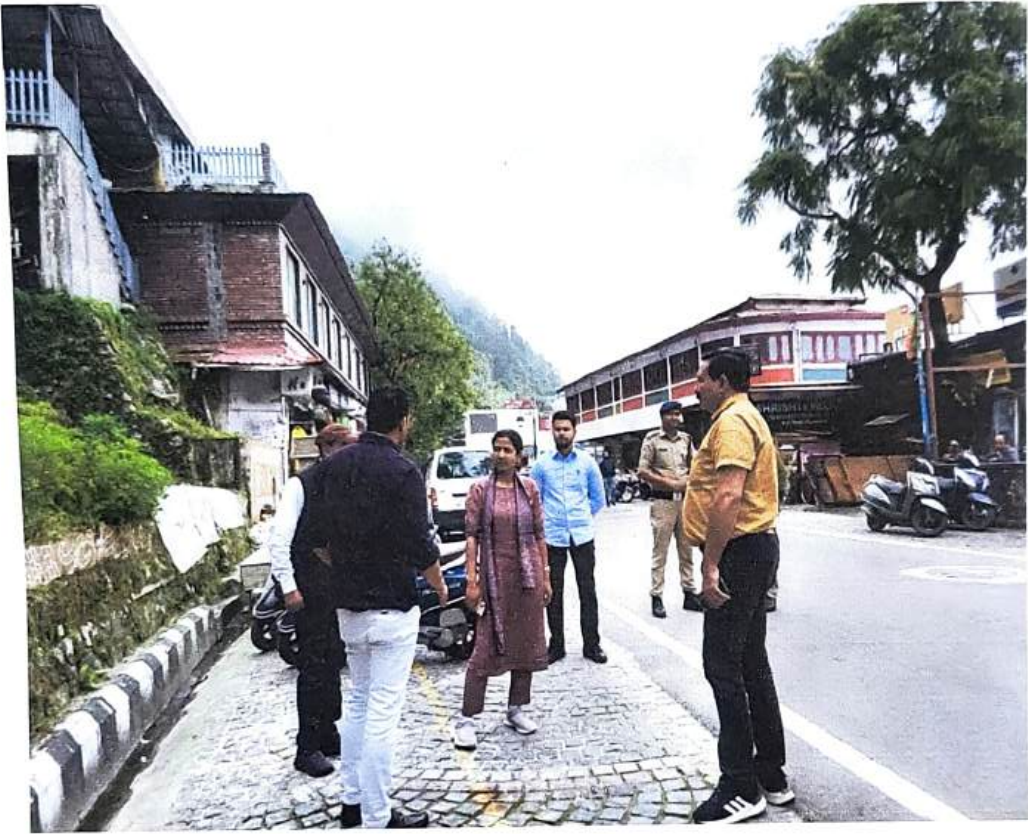




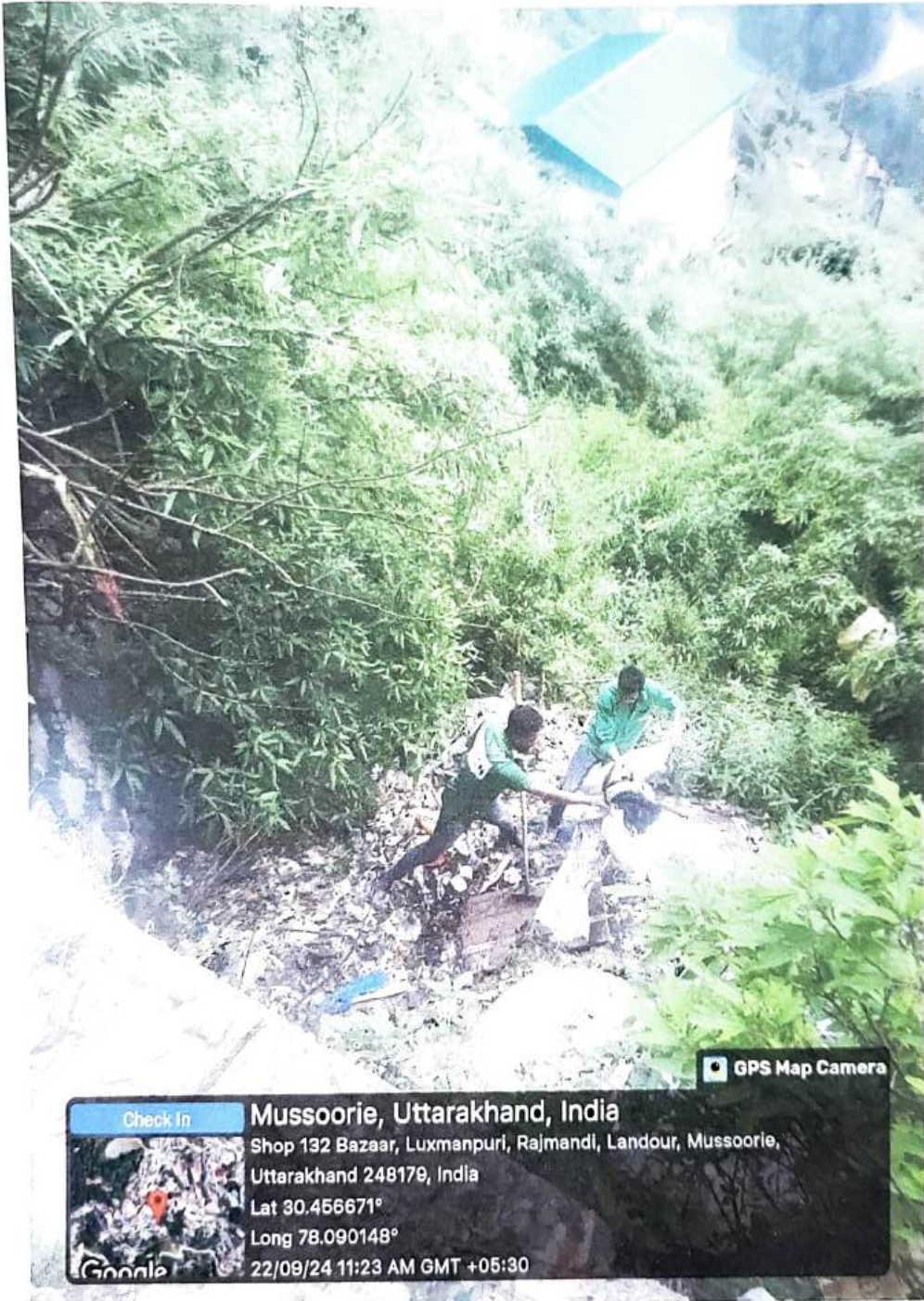












Awareness Activities on Solid Waste Management and Climate Action

Activity 1

Dated : 3 June, 2024

Location : Mall Road, Mussoorie

The Uttarakhand Pollution Control Board alongwith Waste Warriors, introduced “Kachra Man” as a superhero in Mussoorie. These ‘Kachra Man’ individuals roam around draped in waste material to attract tourists and raise awareness about the types of waste we generate.

These Kachra Man's roamed around on the most famous Mall road of Mussoorie speaking to approximately 30 people on the above mentioned topic of single-use plastic. Their aim is to educate a large number of tourists about the importance of reducing waste and using less plastic



Glimpses of the activity at Mall Road, Mussorie.

Activity 2**Dated : 7 June, 2024****Location : Santura Devi Temple**

Uttarakhand pollution Control Board conducted a clean-up drive along with Waste Warrior near Santura Devi Temple located on the national highway towards Yamunotri, Mussoorie with the participation of 30 people from police department, shopkeepers & market association. A total of 300 kg of waste was collected which contained a majority of single use plastic, Multi layered plastic and tetrapak. These clean-ups are always an eye opener for the participants as how littering affects the environment and also to understand how difficult it is to retrieve the waste thrown. This initiative has definitely educated people on the need of source segregation and the harmful effects of dumping.



Glimpses of the Cleanliness Activity at Santura Devi Temple, Mussoorie.

Activity 3**Date: June 11, 2024****Location: Mall Road, Mussoorie**

On June 11, 2024, a rally was organized at Mall Road in Mussoorie to raise awareness about the harmful effects of single-use plastics. The event saw enthusiastic participation from more than 100 individuals, including students from four government schools, local people, and representatives from Keen and the Nagar Palika. The rally commenced at 11:00 AM from the starting point at Mall Road. Participants carried banners and placards with messages highlighting the harms of single-use plastics. Slogans such as “Say No to Plastic,” “Protect Our Environment,” and “Choose Reusable” echoed through the air as participants marched through the streets.

The active involvement of students from four government schools played a crucial role in spreading the message of environmental conservation and emphasizing the urgent need to reduce plastic usage. Additionally, some residents joined the rally, demonstrating their support for a cleaner, plastic-free environment. The presence of Keen and Nagar Palika members reflected the community’s collective effort in addressing environmental issues.



सिंगल यूज प्लास्टिक रोकने के लिए निकाली रैली
 मसूरी। उत्तराखण्ड प्रदूषण नियंत्रण बोर्ड की ओर से वेस्ट वॉरियर्स के सहयोग मसूरी में
 सिंगल यूज प्लास्टिक को लेकर जनजागरूकता रैली निकाली। जिसमें शहर के विभिन्न
 स्कूलों के छात्र-छात्राओं, कीन के स्वयंसेवकों और नगर पालिका के कर्मियों ने प्रतिभाग
 किया। इस दौरान नगर पालिका ईओ राजेश नैथानी, गीता ध्यानी ने विचार रखे। संवाद

Glimpses of the Rally at Mall Road, Mussoorie.



Uttarakhand Pollution Control Board
46 B, IT Park, Sahasradhara Road, Dehradun

प्रेषक,

आर0 मीनाक्षी सुन्दरम,
सचिव,
उत्तराखण्ड शासन।

सेवा में

उपाध्यक्ष,
मसूरी देहरादून विकास प्राधिकरण,
देहरादून।

आवास अनुमति-2

विषय- मसूरी विकास क्षेत्र में फीज जोन एवं फीज जोन के बाहर निर्माण के सम्बन्ध में।

देहरादून, दिनांक 5 अक्टूबर, 2018

परिचय,

पर्युक्त विषयक प्रकरण के संबंध में अवगत दरजना है कि कार्यालय झाप संख्या-49/V/2010-2011-18(आ0)/2010, दिनांक 15.01.2014 द्वारा मसूरी देहरादून विकास प्राधिकरण क्षेत्रान्तर्गत मसूरी विकास क्षेत्र में फीज जोन में निर्माण की अनुमति एवं फीज जोन के बाहर निर्माण हेतु क्षेत्रफल में वृद्धि किये जाने की आवश्यकता के संदर्भ में उपाध्यक्ष, मसूरी देहरादून विकास प्राधिकरण की अध्यक्षता में एक आठ सदस्य समिति का गठन किया गया था।

2- समिति की रिपोर्ट के परीक्षापरान्त मसूरी विकास क्षेत्र में फीज जोन एवं फीज जोन के बाहर के क्षेत्र में शासन द्वारा सन्यक्त विचारोपरांत निम्नलिखित प्रतिबन्धों के अधीन निर्माण अनुमत्य किये जाने को सहर्ष स्वीकृति प्रदान की जाती है:-

अ- पूर्व निर्धारित फीज जोन अन्तर्गत एकल आवासीय भवनों के विस्तार/नव-निर्माण गतिविधियों अधिकतम कुल तल क्षेत्रफल 100 वर्गमी0 तक अनुमत्य होगा। यह सुविधा उत्तराखण्ड के स्थायी निवासियों हेतु ही अनुमत्य होगी।

(i) भवनों की अधिकतम रिज लेवल तक उंचाई 7.5 मी0 (दो तल-G+1) होगी।

(ii) छत अनिवार्य रूप से ढालदार होगी तथा छत का रंग लाल अथवा हरा होगा। रोड लेवल पर टैरेस पार्किंग की स्थिति में छत का ढालदार होने की अनिवार्यता नहीं होगी।

(iii) मसूरी के माल रोड पर गॉंधी चौक से क्लेयरेंस हाउस तक दूनघाटी या खडड की ओर स्थित किसी भी भवन का शिखर मार्ग तल से 03 मी0 नीचे तक ही अनुमत्य होगा। मुख्य महायोजना मार्गों/राष्ट्रीय राजमार्गों/प्रांतीय मार्गों/मुख्य जनपदीय मार्गों पर स्थित भूखण्ड की दशा में भवन के शिखर तल (ridge of sloping roof/terrace) किसी भी दशा में सड़क सतह से 1.20 मी0 से अधिक उंचा नहीं होगा। भवन उक्त मार्ग से 4.50 मी0 की दूरी पर होने पर सड़क सतह से ऊपर अधिकतम एक मंजिला एवं अन्य अपेक्षित तल उक्त सड़क से भवनों की दूरी 4.50 मी0 तथा प्रस्तावित अतिरिक्त तल की उंचाई के बराबर होने की स्थिति में ही अनुमत्य होगी।

(iv) पारिवारिक भूमि उप-विभाजन अनुमत्य होगा।

(v) स्थल विशेष के सुरक्षित होने के सम्बन्ध में भू-वैज्ञानिक द्वारा वर्णित प्रावधानों के

अनुसार परीक्षण किया जाना आवश्यक होगा। ऐसे प्रकरणों में मानचित्र स्वीकृति से पूर्व एकल भवनों/भूखण्डों की मृदा जांच, भूगर्भीय स्थिरता की जांच (Soil Testing Geological Stability Report) आदि एवं भू-कटान एवं भू-मराव के प्रकरणों में भूतत्व एवं खनन विभाग से अनापत्ति प्राप्त की जानी आवश्यक होगी तथा उपविधि व प्रावधानों के अनुसार भवन की स्ट्रक्चरल सुरक्षा सुनिश्चित की जायेगी। प्रस्तुत मानचित्र में भूखण्ड की ढाल हेतु मानचित्र में दो मीटर अन्तराल पर भूमि का कन्टूर प्लान एवं सैक्शन प्रदर्शित करना अनिवार्य होगा।

- (vi) वन विभाग का अनापत्ति प्रमाण पत्र आवश्यक होगा तथा स्थल वन भूमि होने की दशा में भारत सरकार के वन एवं पर्यावरण मंत्रालय की अनापत्ति आवश्यक होगी।
- (vii) निर्माण के पश्चात् अधिकृत स्ट्रक्चरल इंजीनियर द्वारा इस आशय का प्रमाण पत्र प्रस्तुत किया जाना होगा कि निर्माण स्वीकृत ड्राइंग/डिजाइन के अनुरूप है तथा प्रावधानों के अनुसार भवनों की संरचनात्मक स्थिरता पर प्रतिकूल प्रभाव न होने के सम्बन्ध में अधिकृत स्ट्रक्चरल इंजीनियर द्वारा परीक्षण आवश्यक होगा।
- (viii) प्रस्तावित निर्माण हेतु जल संयोजन होने की स्थिति में ही प्रकरण विचारणीय होगा।
- (ix) भवन निर्माण के शेष प्रावधान भवन उपविधि के अनुसार होंगे।
- (x) भवन निर्माण में परिभाषित अनुसार बेसमेन्ट का निर्माण अनुमत्त नहीं होगा।
- (xi) प्रस्तावित भवन निर्माण अथवा निर्माण कार्य जैसी गतिविधि के संदर्भ में भू-स्वातंत्र्य व भूमि के पुष्ट दस्तावेजों सहित एमडीडीए द्वारा वन कानून के परिप्रेक्ष्य में प्रत्येक प्रकरण वन विभाग को संदर्भित किये जायेंगे एवं वन विभाग से वन कानून के तहत निर्गत आख्या के अनुरूप ही अग्रोत्तर कार्यवाही की जानी होगी।
- (xii) समय-समय पर मा० उच्च न्यायालय व मा० उच्चतम न्यायालय द्वारा निर्गत आदेशों का अनुपालन आवश्यक होगा।

ब- फीज जोन से बाह्य क्षेत्र, जो बाहुल्य रूप से विकसित क्षेत्र है, में एकल आवास का निर्माण/विस्तार निम्नानुसार अनुमत्त होगा:-

"भवन निर्माण के अन्य मानकों के साथ-साथ एकल आवासीय निर्माण हेतु भूखण्ड क्षेत्र के आधार पर भवन उपविधि में अनुमत्त कुल तल क्षेत्र अथवा भवन का अधिकतम कुल तल क्षेत्रफल 150 वर्गमी० अनुमत्त होगा तथा यह सुविधा भी मात्र उत्तम-श्रेणी के स्थायी निवासियों को ही अनुमत्त की जाये। शेष प्रावधान उपरोक्त बिन्दु अ के अनुसार मान्य होंगे।"

स- फीज जोन से बाह्य क्षेत्र, जो बाहुल्य रूप से खुले व अविकसित क्षेत्र है, में एकल आवासीय का निर्माण निम्नानुसार अनुमत्त होंगे -

ऐसे खुले क्षेत्र, जिनका उप-विभाजित मानचित्र स्वीकृत नहीं है, में नियमानुसार भवन उपविधि का प्रावधान 72(1) सामान्यतः प्रभावी होगा। तथापि मसूरी क्षेत्र के स्थानीय निवासियों की निजी आवासीय आवश्यकताओं की पूर्ति हेतु एकल आवास निम्न प्रतिबन्धों के साथ अनुमत्त किया जाना विचारणीय होगा :-

- (i) सम्बन्धित भूस्वामी मसूरी क्षेत्र के अन्तर्गत आने वाले राजस्व ग्राम अथवा नगर

पालिका क्षेत्र का स्थायी निवासी हो। इस हेतु उप जिलाधिकारी द्वारा निर्गत स्थाय निवास प्रमाण पत्र को अभिलेखीय आधार माना जायेगा। एकल आवास निर्माण क अनुमति भूस्वामी को केवल एक बार ही दी जायेगी।

- (ii) एकल आवास का अधिकतम भू-आच्छादन 60 वर्गमी० एवं एफ०ए०आर० 0.9 अथव उपविधि में सम्बन्धित भूखण्ड क्षेत्र हेतु अनुमन्य कुल भू-आच्छादन एवं एफ०ए०आर० में से जो भी कम हो, अनुमन्य होगा।
- (iii) भूखण्ड राजस्व अभिलेखों में दर्ज आबादी क्षेत्र की सीमा से 500 मी० की परिधि अन्तर्गत स्थित हो।
- (iv) अन्य प्रावधान उपरोक्त बिन्दु अ में वर्णित अनुसार प्रभावी होंगे।

साथ ही मसूरी क्षेत्र में पार्किंग एवं यातायात आदि की समस्या को दृष्टिगत रखते हुए यह भी निर्णय लिया गया कि इस शासनादेशानुसार नव निर्मित आवासों में पर्यटन विभाग द्वारा अतिरिक्त उत्तराखण्ड गृह आवास (होम स्टे) योजना का लाभ नहीं दिया जायेगा। फीज जोन के बाहर के विकसित एवं अविकसित/खुले क्षेत्रों का निर्धारण प्राधिकरण द्वारा गुण-दोष के आधार पर किया जायेगा।

भवदीय,

(आर० मीनाक्षी सुन्दरम)
सचिव

मा-434/V-2/18(आ०)10/2016-तददिनांक ।

प्रतिलिपि:-

- 1- आयुक्त, गढ़वाल मण्डल, पौड़ी गढ़वाल।
2- जिलाधिकारी, देहरादून।
3- मुख्य नगर एवं ग्राम नियोजक, नगर एवं ग्राम नियोजन विभाग, देहरादून।
4- गोपन (मंत्रिपरिषद) अनुभाग, उत्तराखण्ड शासन।

5- 2115 गुम ।

(सुरेन्द्र सिंह रावत)
उप सचिव

I/30306/2024

कार्यालय मुख्य नगर एवं ग्राम नियोजक,
मुख्यालय, नगर एवं ग्राम नियोजन विभाग, उत्तराखण्ड,

Website : WWW.tcp.uk.gov.in

पंचम तल, राजीव गाँधी बहुउद्देशीय कॉम्प्लेक्स, डिस्पेंसरी रोड, देहरादून- 248001

e-mail : tcpd_uk@live.com

टेलीफोन-0135-2975493

ई0पत्र संख्या- /NAGRANI-E-11927 / म0दे0वि0प्रा0-मसूरी / 2024

दिनांक- सितम्बर, 2024

सेवा में,

सदस्य-सचिव,
उत्तराखण्ड प्रदूषण नियंत्रण बोर्ड,
उत्तराखण्ड।

विषय- मा0 राष्ट्रीय हरित प्राधिकरण, नई दिल्ली में योजित मूल आवेदन संख्या- 51/2023 Suo Moto in Re: News item published in the news paper the tribunal, dated 16-01-2023 entitled "Joshimath Disaster a warning for Mussoorie" के संबंध में।

महोदय,

उपर्युक्त विषयक प्रमुख सचिव, पर्यावरण संरक्षण एवं जलवायु परिवर्तन विभाग की अध्यक्षता में दिनांक- 25/09/2024 को आहूत बैठक के क्रम में नगर एवं ग्राम नियोजन विभाग से संबंधित बिन्दु 18, जो मसूरी क्षेत्र की महायोजना से संबंधित है, का विवरण निम्नानुसार है:-

- (i) मसूरी विकास क्षेत्र महायोजना (मसूरी नगरपालिका क्षेत्र एवं 10 सन्निकट के राजस्व ग्राम, कुल क्षेत्रफल लगभग 142 वर्ग किमी0) हेतु मसूरी-देहरादून विकास प्राधिकरण द्वारा निजी परामर्शदाता फर्म M/s Mars Planning and Engineering Services Pvt. Ltd. Ahmedabad के साथ दिनांक- 15 अक्टूबर, 2018 को अनुबंध किया गया (संलग्न- 1) जिसके अनुसार 11 माह एवं Processing Time के साथ 18 माह का समय महायोजना निर्माण हेतु निर्धारित किया गया।
- (ii) अनुबंध अनुसार परामर्शदाता द्वारा स्टेज- 7 तक का कार्य किया गया है तथा स्टेज- 8 "Creation of base Map and Existing Land use map with spatial attribute collection and vetting of base map" का कार्य गतिमान है, जो दिसम्बर, 2024 तक पूर्ण किया जाना अनुमानित है (संलग्न- 2)। उल्लेखनीय है कि वर्ष 2019 से 2021 तक कोविड पैनडेमिक के कारण कार्य प्रभावित हुआ एवं तदोपरान्त वन विभाग से Notified Forest Estates के सीमांकन का डाटा प्राप्त न होने के कारण आतिथि तक अग्रतर कार्यवाही प्रभावित है।
- (iii) परामर्शदाता से प्राप्त अद्यतन टाईमलाईन अनुसार मसूरी महायोजना (प्रारूप) मार्च 2025 तक पूर्ण किया जाना संभावित है (संलग्न- 2)।
- (iv) उक्त कार्य हेतु मसूरी एवं देहरादून विकास क्षेत्र हेतु संयुक्त रूप से ₹ 2,68,40,000/- (₹ 2.68 करोड़) का अनुबंध किया गया है (संलग्न- 3) जिसमें प्रोरेट के आधार पर मसूरी-क्षेत्र की महायोजना हेतु लगभग 25% (लगभग ₹ 67,000,00) निर्धारित है।

संलग्नक- उपरोक्तानुसार।

Signed by Shallu Thind

Date: 26-09-2024 15:01:59

भवदीया,

(शालू थिण्ड)

वरिष्ठ नगर एवं ग्राम नियोजक (स्तर-2)/
मुख्य नगर एवं ग्राम नियोजक।

पत्रांक व दिनांक उपरोक्तानुसार-

प्रतिलिपि- उपाध्यक्ष, मसूरी-देहरादून विकास प्राधिकरण को सादर सूचनार्थ प्रेषित।

वरिष्ठ नगर एवं ग्राम नियोजक (स्तर-2)/
मुख्य नगर एवं ग्राम नियोजक।

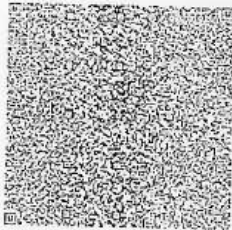


सत्यमेव जयते

INDIA NON JUDICIAL
Government of Uttarakhand

e-Stamp

Certificate No. : IN-UK88894915570331Q
 Certificate Issued Date : 11-Oct-2018 10:05 AM
 Account Reference : NONACC (SV)/ uk1287504/ DEHRADUN/ UK-DH
 Unique Doc. Reference : SUBIN-UKUK128750475138154608225Q
 Purchased by : MDDA DEHRADUN
 Description of Document : Article 16 Bond
 Property Description : NA
 Consideration Price (Rs.) : 0
 (Zero)
 First Party : MDDA DEHRADUN
 Second Party : MaRS PLANNING AND ENGINEERING SERVICES PVT LTD
 Stamp Duty Paid By : MDDA DEHRADUN
 Stamp Duty Amount(Rs.) : 100
 (One Hundred only)



11/10/2018 10:05 AM
 MDDA DEHRADUN

-----Please write or type below this line-----

1. FORM OF CONTRACT.

Lump Sum Remuneration

This CONTRACT (hereinafter called the "Contract") is made the 15th day of the month of Oct. 2018, between Mussoorie Dehradun Development Authority (MDDA), a statutory body constituted under the Uttarakhand Urban & Country Planning & Development Act, 1973, having its office at Transport Nagar, Saharanpur Road, Dehradun, through its Vice Chairman, (hereinafter called the Client which includes its assigns, executors & administrator), and M/s MaRS Planning &

Secretary A/c:

1. The validity of the stamp is subject to the condition that the details on this Certificate and as mentioned on the certificate are correct and true. Any discrepancy in the details on this Certificate and as mentioned on the certificate shall render the stamp invalid.

2. The duty of checking the correctness of the details on this Certificate and as mentioned on the certificate shall be on the person who has provided the details on this Certificate and as mentioned on the certificate.

भारतीय-देहरादून विकास प्राधिकरण
 देहरादून

Engineering Services Pvt. Ltd. (hereinafter called Consultants), having its registered office at 601, Surmount, Opp. Iscon Mega Mall, S. G. Highway, Ahmedabad - 380015 through _____, duly appointed its General Attorney. Certified photocopy General Power of Attorney is annexed herewith; Consultants include its assigns, executors and administrators.

[*Note: If the Consultants consist of more than one entity, the above should be partially amended to read as follows:

"... and a consortium consisting of the following entities, each of which will be jointly and severally liable to the Client for all the Consultants' obligations under this Contract, namely, Sofit Geotechnical Pvt. Ltd. (hereinafter called the "Consultants".)"]

WHEREAS

- (a) the Client has requested the Consultants to provide certain consultancy services as defined in this Contract (hereinafter called the "Services");
- (b) the Consultants, having represented to the Client that they have the required professional skills, and personnel and technical resources, have agreed to provide the Services on the terms and conditions set forth in this Contract;

* All notes should be deleted in final text.

NOW THEREFORE the parties hereto hereby agree as follows:

1. The following documents attached hereto shall be deemed to form an integral part of this Contract:

- (a) The General Conditions of Contract (hereinafter called "GC");
- (b) The Special Conditions of Contract (hereinafter called "SC");
- (c) The following Appendices:

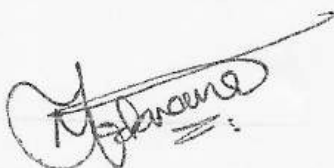
This RFP document and conditions therein shall be deemed to be part of the Contract Agreement.

[Note: If any of these Appendices are not used, the words "Not Used" should be inserted below next to the title of the Appendix on the sheet attached hereto carrying the title of that Appendix.]


Appendix A: Services and Facilities Provided by the Client _____

Appendix B: Description of the Services/Scope of Work _____

2. The mutual rights and obligations of the Client and the Consultants shall be as set forth in the Contract, in particular:



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Appendix B

Description of the Services/Scope of Work

The Objective of the project is to Prepare GIS Based Base Map, Existing Landuse Map, Digital Master Plan, Zonal Plan, Composite Sajra Map Mosaic, Online Geoportal and Online Web Application, of MDDA Area.

1.1 As per the Uttarakhand Urban and Country Planning and Development Act 1973, the relevant provisions for formulation of Master plan shall be followed.

1.2 The Master Plan being prepared will include, but not be limited to, the following aspects:

- i) Location, physiography, linkages, climate, regional setting
- ii) Historical background
- iii) Brief description of city, review of existing Master/ Development Plan, issues related to implementation of existing master plan
- iv) Spatial growth of the town & direction, incorporation of new areas
- v) Demographic data including population (urban/ rural, ward-wise, male & female), literacy rate, growth of population, workers and non-workers, occupational structure, etc shall be collected – as per current & past Census data.
- vi) Employment generating activities – existing and potential vii) Industries—existing and potential, etc.
- viii) Commercial activities including retail and wholesale business, warehousing and godowns, mandis, rural markets, etc.
- ix) Government and semi government offices and government reserved areas.
- x) Educational facilities (Govt./Private) including universities, colleges(engineering, medical, arts, science, commerce, law, etc.), schools (higher secondary, secondary, middle, primary, nursery, etc.) vocational training centres, etc.
- xi) Medical facilities (Govt./Private) including hospitals, dispensaries, primary health centres, veterinary, ayurvedic, homeopathic, etc.
- xii) Social, cultural and other religious activities xiii) Other community facilities including cremation and burial grounds xiv) Physical infrastructure – electricity, water supply, sewerage, solid waste management, telephone, etc.
- xv) Recreational facilities including parks, open spaces, mela grounds and playgrounds, semi-public recreation, etc.
- xvi) Agricultural use including dairies, orchards, nurseries, reserved forests, etc.
- xvii) Circulation facilities including airport/railway stations and yards, road transport terminals, stands for buses and trucks, parking, etc.
- xviii) Proposals/ commitments by Central/ State Government, concerned Local Body, development authority, etc.)
- xix) All vacant lands under government ownership xx) All forest lands and van chowkies etc.
- xx) Places of tourist and heritage importance both natural and manmade including natural areas, fairs and festivals, etc.



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मसूरी-देहरादून विकास प्राधिकरण

- xxi) Legislative and Institutional Framework, institutional structure – municipal bodies, development authority, urban improvement trust, etc.
- xxii) Action Plan, identification of projects and phasing, resource mobilization
- Superimposition and digitization of cadastral map to the extent of individual khasras.
- xxv) Utility plan

2.2 Spatial attribute collection and vetting of Base Map

To provide authenticity to the information, value-addition of spatial features will be done through collection of attributes and the same will be vetted by Competent authority for further usage. The layer-wise spatial attributes as per the proforma given in Design & Standards will be collected from the field by the Consultant, so that the draft final base map can be generated which can be used as a input to the plan formulation.

2.3 Urban Database Creation

Urban and socio-economic data is an input to be used to study the existing situation, identification of issues and formulation of proposals and projections. While most of the data to be collected is secondary, some crucial data may be required to be collected from primary surveys. An indicative format for data collection is provided in the guidelines, Data analysis will be presented sector-wise, in the form of chapters in the draft Master Plan document.

Databases to be created and surveys to be conducted – including landuse survey, socioeconomic, traffic and transport and other surveys will be as per the standard guidelines

2.4 Formulation of Master Plan

The horizon year for the draft master plan will be 20 years-.

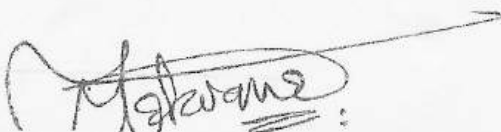
The draft proposals will use existing Master Plan/Zonal/Regional plans, district plans and will incorporate proposals of other departments

The draft master plan will specify the aims and objectives for the development of the city/ town.

Contents of the draft master/ development plan document will be as per URDPFI Guidelines and statutory provisions of the Uttarakhand Urban and Country Planning and Development Act 1973.

3. DELIVERABLES AND TIME/ PAYMENT SCHEDULE

The time schedule/payment schedule of the consultancy fee will be as follows on the recommendation of Monitoring Agency of MDDA:



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Sl. No.	Description	Time	Deliverables	Mile stone	Payment as per mile stone status
1	Inception report (inception report will include details of work with all necessary time and resources deployment along with software, instruments & field related information. Also include secondary data collection information required in scope of work)	10 days	10 copies of Inception Report	M1	5%
2	Mobile App for Data collection (It would include App which will be used for data collection from line department. The scope also covers that data should come to MDDA server for gathering information)	X+ 20	Certificate of Mobile App on store	M2	5%
3	Web Portal (Establishing of Web GIS portal, which will be used for displaying and querying Digital Master Plan as per specification given in RFP. This portal will also link with Mobile app for data collection. This will also contain dashboard for tracking various projects of MDDA)	X+ 50	Installation and Hosting of Web GIS Portal with sample data on server	M2	10%

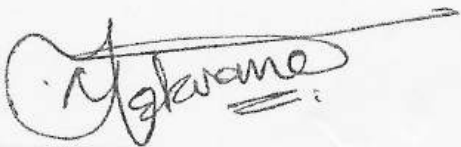



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मसूरी-देहरादून विकास प्राधिकरण
देहरादून


4	Collection and scanning of Sajra Maps (This task will include the collection of all Sajra sheet pertaining to MDDA area from respective line department and scanned all maps. Raw copy of scan maps and mosaic of Sajra maps will be submitted to MDDA before making further use of Sajra/Khasra maps)	X+60	Scanned Sajra Maps (Two copy in digital form)	M3	10%
5	Submission of Procured Satellite data (This will include Procurement of Satellite data at 50 cm or better resolution and as per specification, the licenses of data shall be in the name of MDDA. It shall be the consultant responsibility to procure the cloud free data in stipulated time frame and at Government of India rate. Consultant shall submit a copy of original data to MDDA before doing any correction or rectification on data.)	X+90	Raw Satellite Data in digital form DVD or Hard disk	M4	10%

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मसूरी-देहशदून विकास प्राधिकरण
देहशदून

6	Rectification of Satellite data (This task will include DGPS survey for ortho rectification of satellite data. Final rectified data which will be used for existing land use/Base map/rectification of Sajra maps/Master plan etc. Final rectified satellite data will be approved by committee formed by MDDA and final copy of the same shall be submitted by consultant in the repository of MDDA)	X+120	Rectified Satellite data in DVD/Hard disk	M5	5%
7	Sajra/ Khasra Map Digitization	X+165	Mosaic of Village boundaries from Sajra/Khasra in .shp format		10%
8	Creation of Base Map and existing Landuse map with spatial attribute collection and vetting of base map (This task will include intensive field work)	X+255	Base and Existing Landuse map 10 hard copies and one in digital-DVD/hard disk	M6	10%
9	Submission of Draft Master Plan/ Draft Zonal Plan along with Data Analysis Report, Projected Requirements, Issues & Potentials, Draft proposals and uploading on Web portal for display	X+300	10 Copies of Draft Master Plan for display and available on web portal	M7	15%



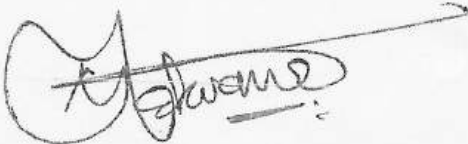
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मसूरी-देहरादून विकास प्राधिकरण
देहरादून

10	Preparation Final Master Plan and Final Zonal Plan and Online Visualization	X+330	10 Copies of Final Master and Zonal plan and available on online for visualization in GIS form	M8	15%
11	On Completion of Support period			M9	5%

Note:-

- (i) The consultancy charges for performance of the services under the contract shall be paid by the MDDA in terms of percentage of the total project cost (as quoted by the Successful Bidder).
- (ii) The client shall pay the Consultant, the Goods and Service Tax (GST), on prevailing rates as applicable on the consultancy charges but the contract price is exclusive of GST.
- (iii) It is expected that consultant has quoted amount considering all requirements for satisfactory performance of the services included in ToR. If the consultant has not considered any component for performance of the services, no extra payment shall be made on this account.
- (iv) The total period for completion for the assignment does not exceed 11 months. All the digital data including imageries, GIS base map, Thematic maps specified, data analysis report, Layer wise spatial attributes etc along with all the linkages for the deliverable shall be handed over to MDDA.
- (v) The payment will become due on approval of the stage reports and on raising of bills/invoice by the consultant after the approval of the stage report. The processing time of the payment will be 60 days for final payment and 30 days for all other payments.
- (vi) Consultant will require to submit complete source code / technical manual and installation guidelines whatever is required by mdda for smooth functioning/management of the software developed by consultant at all the stages wherever required.
- (vii) Consultant will also require to make arrangements to link the proposed GIS base software to the ongoing Map approval system of mdda in a manner that any approved/rejected plan gets reflected on the provided/created GIS based master/zonal plan.



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मसूरी-देहरादून विकास प्राधिकरण
देहरादून

क्रमांक	समुद्दगी	दिप्पणी
1	Inception report इन्सिप्शन रिपोर्ट	पूर्ण 100%
2	Mobile App for Data collection डेटा संग्रह के लिए मोबाइल ऐप	पूर्ण 100%
3	Collection and scanning of Sajra Maps सजरा मैप एकत्र करके स्कैन करना	पूर्ण 100%
4	introduction of Web GIS portal वेबपोर्टल का परिचय	पूर्ण 100%
5	Submission of Procured Satellite data सेटेलाइट मानचित्र खरीद करके जमा करना	पूर्ण 100%
6	Rectification of Satellite data सेटेलाइट मानचित्र में सुधार करके जमा करना	पूर्ण 100%
7	Sajra/ Khasra Map Digitization सजरा / खसरा मैप को डिजिटाइज करना	देहरादून (AMRUT) पूर्ण 100% Payment Received
8	Creation of Base Map and existing Landuse map with spatial attribute collection and vetting of base map आधार मानचित्र को तैयार करना एवं स्थानिक विशेषता संग्रह के साथ वर्तमान भूमि-उपयोग मानचित्र और आधार मानचित्र का पुनः निरीक्षण करना	मसूरी पूर्ण 100% Payment Pending शेष 50% पूर्ण करने की संभावित अवधि (दिसंबर 2024) Payment Pending शेष
9	Submission of Draft Master Plan/ Draft Zonal Plan along with Data Analysis Report, Projected Requirements, Issues & Potentials, Draft Proposals डेटा विश्लेषण रिपोर्ट, अनुमानित आवश्यकताओं, मुद्दों और संभावनाओं, ड्राफ्ट प्रस्तावों के साथ ड्राफ्ट मास्टर प्लान / ड्राफ्ट जोनल प्लान प्रस्तुत करना	पूर्ण 100% Payment Received
10	Preparation Final Master Plan and Final Zonal Plan and Online Visualization अंतिम मास्टर प्लान और अंतिम जोनल प्लान तैयार करना और वेब पोर्टल पर ऑनलाइन विजुअलाइजेशन तैयार करना	पूर्ण करने की संभावित अवधि (मार्च 2025) Payment Pending शेष
11	Support Period समर्थन अवधि	जनसामान्य/अधिकारणों से आपत्ति सुजाव व सुनवाई पर निर्भर होगा Payment Pending शेष

**कार्यालय मसूरी देहरादून विकास प्राधिकरण,
ट्रान्सपोर्ट नगर, सहारनपुर रोड, देहरादून**

पत्रांक 1681 / नि0अनु0-05 / दे0दून-मसूरी महा0-2041 / 2018

दिनांक 21/8/18

सेवा में,

MaRS Planning & Engineering Services Private Limited
92, Maltikunj Jyotipath Dibdih,
Doranda, Ranchi - 834002

विषय:- To Prepare GIS base map, Existing Land use Map, Digital Master Plan, Zonal Plan, Composite Sajra, Map mosaic, Online Geo portal & Online Web Application of MDDA area के कार्य के सम्बन्ध में ।

महोदय,

उपरोक्त विषयक कार्य हेतु आपके द्वारा प्रस्तुत की गयी वित्तीय निविदा दरें प्रथम न्यूनतम पाये जाने के कारण उपाध्यक्ष महोदय द्वारा रू0 2,68,40,000.00 में उक्त कार्य को कराये जाने की स्वीकृति प्रदान की गयी है।

चूँकि यह प्रोजेक्ट मसूरी देहरादून विकास प्राधिकरण क्षेत्र (देहरादून एवं मसूरी) के लिए एक महत्वपूर्ण प्रोजेक्ट है । अतः आपको निर्देशित किया जाता है कि उक्त कार्य को शीघ्रता शीघ्र सम्पादित करना सुनिश्चित करें । इसके साथ ही यह भी सूचित किया जाता है कि उक्त कार्य का अनुबन्ध सम्पादित कराने के साथ-साथ निर्धारित परफार्मेंस सिक्योरिटी जमा कराना सुनिश्चित करें ।

भवदीय,
8-18
नगर नियोजक,
मसूरी देहरादून विकास प्राधिकरण
देहरादून ।

प्रेषक,

जिलाधिकारी,
देहरादून।

सेवा में,

सदस्य सचिव,
उत्तराखण्ड प्रदूषण नियंत्रण बोर्ड,
देहरादून।

संख्या:- 337/एल0बी0सी0/2024

दिनांक 24 सितम्बर, 2024

विषय:- मा0 राष्ट्रीय हरित अधिकरण नई दिल्ली में योजित मूल आवेदन संख्या-51/2023 **Suo Moto in Re: News item published in the newspaper the tribune, dated 16-12-2023 entitled "Joshimath Disaster a warning for mussoorie"** में पारित आदेश दिनांक 02.04.2024 के सम्बन्ध में।

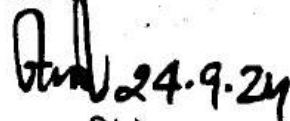
महोदय,

कृपया उपरोक्त विषयक अपर सचिव, पर्या0 संरक्षण एवं जलवायु परिवर्तन अनुभाग उत्तराखण्ड शासन के पत्र संख्या-1/212533/2024 दिनांक 20.05.2024 का संदर्भ ग्रहण करने का कष्ट करे जिसके क्रम में मूल आवेदन संख्या-51/2023 में पारित आदेश दिनांक 02.04.2024 के अनुपालन में Action Taken Report तैयार कर आपको प्रेषित किये जाने के निर्देश दिये गये है।

मूल आवेदन संख्या 51/2023 में पारित आदेश दिनांक 02.04.2024 के अनुपालन में मुख्य सचिव महोदय की अध्यक्षता में आयोजित बैठक दिनांक 14.08.2024 के क्रम में वरिष्ठ पुलिस अधीक्षक द्वारा अपने पत्र संख्या एसटी-एसएसपी-05/2024 दिनांक 04.09.2024 के अन्तर्गत मसूरी से सम्बन्धित बिन्दु सं0-19 पर सूचना उपलब्ध करायी गयी है।

अतः उक्त के अनुपालन में वरिष्ठ पुलिस अधीक्षक के पत्र संख्या एसटी-एसएसपी-05/2024 दिनांक 04.09.2024 के द्वारा प्रस्तुत निरीक्षण/जांच आख्या संलग्न कर अग्रिम कार्यवाही हेतु प्रस्तुत है।
संलग्न-यथोपरि।

भवदीय

 24.9.24

(जय भारत सिंह)

अपर जिलाधिकारी (प्र0)

o/c

देहरादून

प्रतिलिपि- निम्नलिखित को सूचनार्थ प्रेषित।

- 1- अपर सचिव, पर्यावरण संरक्षण एवं जलवायु परिवर्तन अनुभाग, उत्तराखण्ड शासन।
- 2- रजिस्ट्रार जनरल मा0 राष्ट्रीय हरित अधिकरण, नई दिल्ली।
- 3- श्री दीपक बोरा, पैनल अधिवक्ता, मा0 राष्ट्रीय हरित अधिकरण, नई दिल्ली।

 24.9.24

अपर जिलाधिकारी (प्र0)

o/c देहरादून

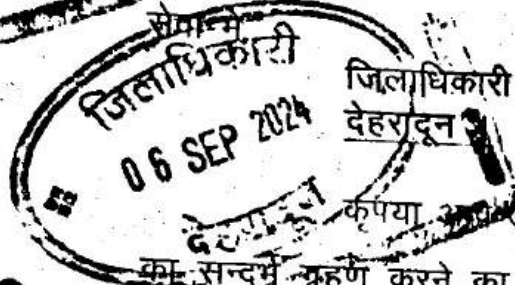


टेलीफोन न० 2716203 (का०) 2716205(आ०) 2716204(फैक्स)एसटीडी कोड-0135
कार्यालय वरिष्ठ पुलिस अधीक्षक जनपद देहरादून (उत्तराखण्ड)
72, राजपुर रोड देहरादून-248001



पत्रांक: एसटी-एसएसपी-05/2024

दिनांक:-सितम्बर 04, 2024

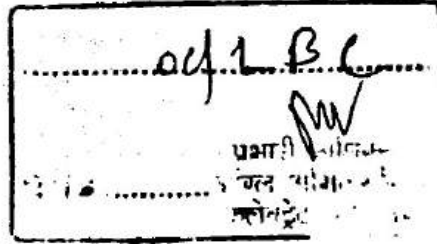


जिलाधिकारी
देहरादून

कृपया अपने पत्र संख्या:-271/एल0बी0सी0-2024 दिनांक 27 अगस्त 2024 के सम्बन्ध में ग्रहण करने का कष्ट करें, जो माननीय राष्ट्रीय हरित अधिकरण (एन0जी0टी0), नई दिल्ली में योजित मूल आवेदक संख्या Suo Moto in Re:- News item published in the newspaper the tribunal dated 16-01-2023 entitled "Joshimath Disaster warning for mussoorei" के सम्बन्ध में मसूरी से सम्बन्धित बिन्दु संख्या 19 के सम्बन्ध में सूचना उपलब्ध कराये जाने विषयक है।

अतः उक्त सम्बन्ध में पुलिस अधीक्षक, यातायात से प्राप्त सूचना सुलभ सन्दर्भ हेतु प्रेषित है।

संलग्न:-यथोपरि।



7556
07/9/24

वरिष्ठ पुलिस अधीक्षक,
देहरादून।

वरिष्ठ पुलिस अधीक्षक,
जनपद - देहरादून।

कृपया अपने कार्यालय पत्रांक एसएसपी-देहरादून दिनांक 28/08/2024 का संदर्भ ग्रहण करें जो जिलाधिकारी देहरादून के कार्यालय पत्र संख्या:-271/एल0बी0सी0-2024 दिनांक 27 अगस्त 2024 के माध्यम से उप जिलाधिकारी मसूरी को प्रेषित जिसमें जो माननीय राष्ट्रीय हरित अधिकरण (एन0जी0टी0), नई दिल्ली में योजित मूल आवेदन संख्या Suo Moto in Re:-News item published in the newspaper the tribunal dated 16/01/2023 entitled " Joshimath Disaster warning for mussoorei" के सम्बन्ध में जनपद देहरादून मसूरी से सम्बन्धित बिन्दु संख्या 19 के सम्बन्ध में सूचना उपलब्ध कराये जाने विषयक है।

उक्त सम्बन्ध में सादर अवगत कराना है कि मसूरी में कुशल यातायात संचालन के दृष्टिगत निम्न कार्ययोजना के तहत कार्यवाही की जा रही है साथ ही मसूरी में पार्किंग की उपलब्धता का विवरण निम्नवत है -

Regulation of Traffic in Mussoorie-मसूरी में जाने हेतु मुख्य तथा पर्यटक स्थल मार्ग मॉल रोड/ पिक्चर पैलेस / लाईब्रेरी में पर्यटकों हेतु होटल अवस्थित है जिनमें आने वाले पर्यटकों के लिए पार्किंग की व्यवस्था उपलब्ध है। साथ ही मॉल रोड में लाईब्रेरी चौक तथा पिक्चर पैलेस पर नगर पालिका द्वारा यातायात को सुगमता से संचालित किये जाने हेतु बैरियर स्थापित किये गये हैं जहां से सांय 17.00 से रात्रि 22.00 बजे तक वाहनों का प्रवेश पूर्ण रूप से प्रतिबन्धित रहता है। मॉल रोड पर यातायात का दबाव बढ़ने पर कैमल बैक रोड से एकल मार्ग के तहत छोटे चौपहिया व दुपहिया वाहनों की आवागमनी की जाती है। मसूरी में पर्यटकों के अतिरिक्त जनपद उत्तरकाशी तथा जनपद टिहरी जाने हेतु स्थानीय लोगों द्वारा भी अपने दुपहिया / चौपहिया वाहनों से आवागमन किया जाता रहता है।

मसूरी में वाहनों के पार्क किये जाने हेतु निम्न होटलों में निम्न प्रकार वाहनों की पार्किंग क्षमता उपलब्ध है -

क्र.सं	होटल का नाम	पार्किंग क्षमता	क्र.सं	होटल का नाम	पार्किंग क्षमता
1	डालमिया रिसोर्ट	10 कार	11	होटल ऐवलोक	05 कार
2	स्टालिंग रिसोर्ट	10 कार	12	होटल बैन्टउड	40 कार
3	होटल सवाय	100 कार	13	होटल चार्लिन	10 कार
4	होटल ओसिस	40 कार	14	होटल कर्नाट कैसल	30 कार
5	विष्णु पैलेस	20 कार	15	होटल डेविन - इन	15 कार
6	होटल द्वापर	20 कार	16	होटल ग्रीन कैसल	15 कार
7	स्टार रेजिडेन्सी	10 कार	17	होटल हिलक्वीन	10 कार
8	होटल देवलोक	10 कार	18	होटल माल पैलेस	10 कार

क्र.सं	होटल का नाम	पार्किंग क्षमता	क्र.सं	होटल का नाम	पार्किंग क्षमता
0	होटल अभिनन्दन	05 कार	19	होटल वैली व्यू	05 कार
	पदमनी निवास	10 कार	20	होटल हैकमन्स	20 कार
21	होटल हावर्ड	20 कार	33	मसूरी इन	07 कार
22	होटल होरिजन पाधा	10 कार	34	नाभा पैलेस	20 कार
23	पार्क प्लाजा	40 कार	35	जे0पी0 होटल	80 कार
24	मसूरी इन्टर नेशनल	10 कार	36	होटल कन्द्री	05 कार
25	बसंत पैलेश	20 कार	37	होटल सन राईज	10 कार
26	हार्ड रोक	10 कार	38	होटल आशियाना	15 कार
27	फोर्ट रिसोर्ट	45 कार	39	होटल सिल्वर रॉक	15 कार
28	सुलेटर प्लाजारा	10 कार	40	अशोका कान्टिनेन्टल	05 कार
29	हिमालयन क्लब	20 कार	41	क्लासिक हाईट	10 कार
30	शिप्रा	20 कार	42	होटल सिल्टन	10 कार
31	मसूरी क्लब	10 कार	43	होटल ग्रीश माउण्ट	30 कार
32	मिनरवाली	10 कार	44	होटल सन एण्ड स्नो	20 कार
कुल योग होटल पार्किंग				847 कारें	

सरकारी / प्राइवेट पार्किंग -

क्र.स	पार्किंग	पार्किंग स्थल	क्षमता
1	नगर पालिका द्वारा संचालित	पिक्चर पैलेस से लण्डौर रोड, जैन धर्मशाला तक रोड के दाहिने ओर एवं नगर पालिका पार्किंग	50 कार
2		कम्पनी गार्डन रोड पर	30 कार
3		किंग ग्रेग स्थित नई पार्किंग	20 बसें, 300 कार
4	एम0डी0डी0ए0 द्वारा	एमडीडीए की लाईब्रेरी पार्किंग	40 कार
		मैसानिक लॉज बस अड्डा / पिक्चर पैलेस टैक्सी स्टेण्ड	06 बसें, 30 टैक्सी
		एमडीडीए की लण्डौर पार्किंग	20 कार
5	प्राइवेट पार्किंग	कैम्पटी टैक्सी स्टेण्ड	07 बसें, 150 कार
		SYLISTON PARKING पिक्चर पैलेस	60 कार
		विकास होटल पार्किंग कुलडी	60 कार
कुल योग			33 बसें, 740 कार

इसके अतिरिक्त मसूरी में वैकल्पिक व्यवस्था के रूप में (टिहरी बस स्टैण्ड एवं हिमालय क्लब नगर (लिका रोड़) पर सड़क के किनारे लगभग 50 कारें ऑन स्ट्रीट पार्किंग के रूप में पार्क करवायी जा सकती है।

- Steps taken to improve traffic congestion in Mussoorie - मसूरी में यातायात का दबाव बढ़ने पर कैमल बैक रोड से छोटे चौपहिया व दुपहिया वाहनों की आवाजाही की जाती है। साथ ही मार्ग पर यातायात के कुशल संचालन हेतु क्रेन मोबाईल को भ्रमणशील रखे जाने पर अनावश्यक खड़े वाहनों के विरुद्ध टोईंग की कार्यवाही अमल में लायी जा सकती है। साथ ही मसूरी मॉल रोड में होटलों में पार्किंग फूल हो जाने पर वाहनों को मॉल रोड के बाहर अन्य पार्किंग स्थलों में पार्क किये जाने हेतु भेजा जा सकता है। साथ ही यातायात को सुगमतापूर्वक संचालित किये जाने हेतु ड्रोन के माध्यम से भी निगरानी रखी जानी नितान्त आवश्यक है। इसके अतिरिक्त मॉल रोड / अन्य मार्गों पर अतिक्रमण करने वाले फड के विरुद्ध नगर पालिका के साथ संयुक्त रूप से अभियान चलाकर कार्यवाही की जानी आवश्यक है ताकि मसूरी में यातायात तथा पैदल व्यक्तियों का आवागमन सुगमता से हो सके।

“मसूरी से देहरादून जाने वाले वाहनों के लिये यातायात प्लान”

- मसूरी से देहरादून जाने वाले वाहनों को किंक्रेग से जेपी बैण्ड व जेपी बैण्ड से बालोंगंज की तरफ डायवर्ट कर झड़ीपानी की ओर से मेन रोड पर भेजा जायेगा, जो कि वन वे रहेगा।
- पिक्चर पैलेस की ओर से जाने वाले वाहनों को बडा मोड़ से वाइन वर्ग एलन स्कूल होते हुए जेपी बैण्ड से बालोंगंज की ओर डायवर्ट कर झड़ीपानी से होते हुए मेन रोड की ओर भेजा जायेगा।
- लाल टिब्बा से आने वाले वाहनों को मंलिगार तिराहे से डायवर्ट करते हुए बुडस्टॉक स्कूल के नीचे से जेपी बैण्ड और जेपी बैण्ड से बालोंगंज की ओर डायवर्ट कर झड़ीपानी होते हुए मेन रोड की ओर भेजा जायेगा।
- धनोल्टी / बाटाघाट से आने वाले ट्रैफिक को जेपी बैण्ड से बालोंगंज की ओर डायवर्ट करके झड़ीपानी से होते हुए मेन रोड की तरफ भेजा जायेगा।

नोट - यदि उपरोक्त सभी प्लानों में यातायात सुगमता से नहीं चल पाता है तो तत्पश्चात कुठाल गेट से ट्रैफिक वापस डायवर्ट कराया जायेगा।

प्लान A -

1. प्लान A के मुताबिक देहरादून से मसूरी आने वाले वाहनों को जो किंग्रेग होते हुए लाईब्रेरी की तरफ जायेंगे उन वाहनों को लाईब्रेरी चौक पर MDDA पार्किंग (नियर लाईब्रेरी टैक्सी स्टैण्ड) पर एवं कैम्पटी स्टैण्ड मल्टी स्टोरेज पार्किंग पर पार्क कराया जायेगा।

2. लाईब्रेरी व कैम्पटी स्टैण्ड पर मल्टी स्टोरेज पार्किंग फुल होने की स्थिति में किंग्रेग पार्किंग पर ही पार्क किया जायेगा।

प्लान B - यदि लाईब्रेरी टैक्सी स्टैण्ड व कैम्पटी स्टैण्ड पर मल्टी स्टोरेज पार्किंग फुल हो जायेगी तब प्लान नं० B के मुताबिक छोटे वाहनों को किंग्रेग से पिक्चर पैलेस की तरफ भेजे जायेंगे, एवं बड़े वाहनों को किंग्रेग पर बनी पार्किंग पर ही पार्क कराये जायेंगे।

प्लान C - यदि पिक्चर पैलेस पर MDDA पार्किंग व अन्य पार्किंग फुल हो जायेगी तब प्लान C के मुताबिक वाहनों को किंग्रेग से बड़े मोड़ की ओर सड़क किनारे पार्क कराये जायेंगे। किंग्रेग से बड़े मोड़ तक मार्ग वन वे रहेगा।

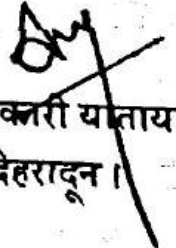
प्लान D - लाईब्रेरी से किंग्रेग तक के मार्ग पर अत्यधिक ट्रैफिक दबाव होने की स्थिति में प्लान के मुताबिक देहरादून से मसूरी आने वाले वाहनों को गज्जी बैण्ड से हाथीपावं तिराहे की ओर डायवर्ट कर बैवर्ली चौक से जीरो प्वाइंट की ओर भेज दिया जायेगा। इस प्लान को विशेष परिस्थिति में ही इस्तेमाल किया जायेगा, क्योंकि हाथीपावं वाला मार्ग काफी शान्त/सुनसान मार्ग है।

नोट- उपरोक्त मसूरी यातायात प्लान D केवल वन वे रहेगा, यह केवल मसूरी आने वाले वाहनों के लिए है।

अतः आख्या आवश्यक कार्यवाही / अवलोकनार्थ सादर प्रेषित है।

पत्रांक:- सीओटी/हरित प्राधि०/२०२४

दिनांक:- सितम्बर, ०३, २०२४


क्षेत्राधिकारी यातायात,
- देहरादून।