

Environmental and Social Due Diligence Report

Project Number: 47083-004
November 2020

INDIA: Accelerating Infrastructure Investment Facility in India – Tranche 3 Parsuram Arawali Highways Private Ltd. (Part 1 of 3)

Prepared by India Infrastructure Finance Company Limited for the India Infrastructure Finance Company Limited and the Asian Development Bank.

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INDIA INFRASTRUCTURE FINANCE COMPANY LIMITED (IIFCL)



**ENVIRONMENT AND SOCIAL SAFEGUARDS DUE DILIGENCE
REPORT (ESDDR)**

of

Parsuram Arawali Highways Pvt Ltd (PAHPL)



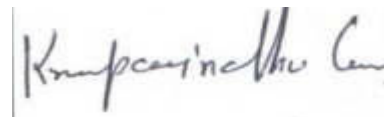



Sub Project: Rehabilitation And Up-Gradation Of NH-66 (Erstwhile NH-17) From Km 205/400 To Km 241/300 [Parshuram Ghat– Arawali Section] To Four Lane With Paved Shoulder in the State Of Maharashtra Under NHDP –IV on Hybrid Annuity Mode.

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ENVIRONMENT AND SOCIAL SAFEGUARDS DUE DILIGENCE REPORT

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PROJECT BACKGROUND:

1. PURPOSE OF THE REPORT:

1. This Environment and Social Due Diligence Report (ESDDR) has been carried out by India Infrastructure Finance Company Limited (IIFCL) in consultation with the Concessionaire, Parsuram Arawali Highways Private Limited (PAHPL) to assess the adequacy of the project with the applicable environmental safeguard compliance. The report has been prepared as per the documents/information received from the concessionaire.

2. SUB-PROJECT TITLE:

2. The sub-project includes - Rehabilitation and up-gradation of NH-66 (erstwhile NH-17) from Km. 205/400 to Km. 241/300 (Parshuram Ghat-Arawali Section) to four lanes with paved shoulder (Total Length 34.450 Km) in the state of Maharashtra under NHDP-IV on Hybrid Annuity Mode.

3. SUBPROJECT BACKGROUND:

3. The Ministry of Road Transport and Highways (MORTH), Government of India through Public Works Department (PWD), Government of Maharashtra has awarded road stretch project comprising development of the existing two lane road into four lane with paved shoulder of Parshuram Ghat-Arawali section of NH-66 (erstwhile NH-17) from Km 205/400 to Km 241/300 (as per design length 34.450 Km) in the state of Maharashtra under NHDP-IV (Hybrid Annuity) basis for a Concession Period of 17 Years which includes construction period of 730 days i.e. 2 Years and Operation Period of 15 Years to M/s Parsuram Arawali Highways Private Limited (PAHPL), a joint venture (50:50) of M/s Chetak Enterprises Ltd. (CEL) and M/s Eagle Infra India Ltd (EIIL) as concessionaire. Letter of Acceptance (LOA) for the project was issued on 05th July, 2016 and Concession Agreement was signed on 4th October, 2016 and the date of appointment is 4th December 2017.

4. SUBPROJECT LOCATION & DESCRIPTION:

4. The site of the four-lane project highway comprises section of National Highway-66 (erstwhile NH-17) commencing Km 205/400 to Km 241/300 in the State of Maharashtra, India. The total design length of the project road is about 34.450 Km. Alignment of the project is shown in Figure 1.
5. The alignment passes through settlements of Kharavaliwadi, Chiplun, Kamathe, Sawarde and Arawali in Ratnagiri district of Maharashtra. Additional land shall be acquired for truck bay, toll plaza and bus bays.

6. The road widening and strengthening works mainly involve: toll plazas, roadside furniture, pedestrian facilities, landscaping and tree plantation, truck lay byes, bus-byes and passenger shelters, cattle crossing / underpasses (vehicular) /flyovers, highway lighting, administrative, operation and maintenance of base camp, vehicle rescue posts, telecom system and highway traffic management systems.

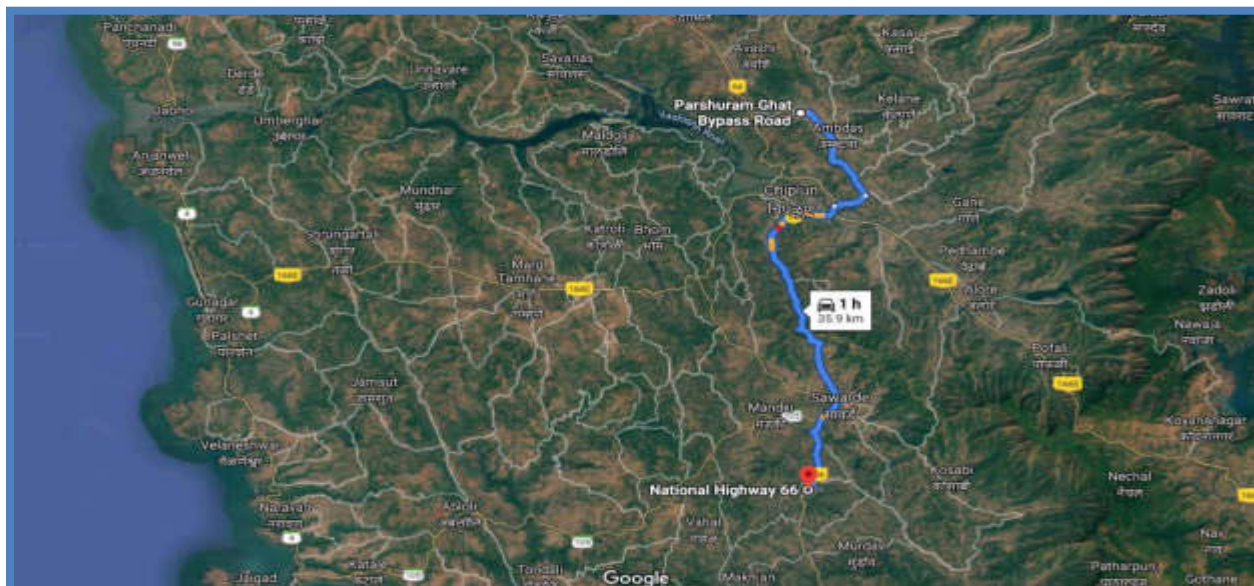


Figure 1: Project Location Parsuram Arawali Highways Private Limited (PAHPL)

7. The sub-project will provide the widening and strengthening of existing 2 lanes section of NH-17 (new NH-66) and its Operation and Maintenance (O & M). The scope of work includes 1 elevated structure, 3 VUPs, 6 Light VUPs, 1 PUP, 1 CUP, 175 Pipe Culverts, 28 Box Culverts, 05 New Minor Bridges (including old and new), 1 Toll Plaza, 1 Truck Bay, 14 Bus Bays, 30 minor intersection, 02 major intersections and 01 Flyover. The Salient features of the sub-project are given in Table 1.

Table-1: Salient Features of Parsuram Arawali Highways Pvt. Ltd.

Particulars	Features
Project Road	NH-66 (erstwhile NH-17) Section from Parshuram Ghat- Arawali (km 205/400 to km 241/300)
State	Maharashtra
Concessioning Authority	Ministry of Road Transport & Highway (MoRT&H)
Concessionaire	M/s Chetak Enterprises Ltd. (CEL) in joint venture with M/s Eagle Infra India Ltd (EIIL)
Project Start	From km 205/400 (Parshuram Ghat)
Project End	To km 241/300 (Kherшет)
Total Project Length	34.450 km (design length)
Service Road	21.160 km
Elevated Structure of length	1 Nos. & 1560 m (Km 212/000 to Km 214/050)
VUPs	03 Nos.
LVUPs	06 Nos.
PUP	01 Nos.

Particulars	Features
CUP	01 Nos.
Pipe Culverts	175 Nos.
Box Culverts	28 Nos.
Minor Bridges	02 Nos. (New construction) 3 Nos. (Reconstruction/Rehabilitation/Repair/Widening)
RCC Drain & Footpath	21.160 km
Toll Plaza	01 Nos. (from km 238/950 to km 239/550)
Truck Bay	01 Nos. (from km 221/100 to km 221/300)
Bus Bays	14 Nos.
Minor Intersections	30 Nos.
Major Intersections	02 Nos.
Shoulder and Footpath	21160 m (Both Sides)
Realignment	5990 m
Grade separated Intersections	11 Nos.

5. ADMINISTRATIVE DETAILS OF THE PROJECT

8. The administrative and financial details of the project as follows in the below **Table 2:**

Table-2: Administrative details of the project:

Description	Project Data
Client	Public Works Department (PWD), Maharashtra (Ministry of Road Transport and Highways, Government of India)
Concessionaire	M/s Parshuram Arawali Highways Private Limited (PAHPL)
Project Sponsors	M/s Chetak Enterprises Ltd. (CEL) and M/s Eagle Infra India Ltd (EIL)
Total Project Cost	INR 670 Cr
EPC Contractor	M/s Chetak Enterprises Ltd.
EPC Cost	INR 605 Cr.
Independent Engineer	M/s Bloom Companies LLC in association with Credible Management & Consultants(P) Ltd.
Date of Concession Agreement	4 th October 2016
Financial Closure	23 rd August 2017
Appointed Date	4 th December 2017
EPC Agreement Signed	24 th November 2017
Concession Period	17 years (including construction period of 2 years) from the date of appointed date.
Lenders Independent Engineer	M/s SJA Industries Consultants Pvt. Ltd.

Source: LIE Report

6. COST & FUNDING PATTERN OF THE PROJECT:

9. The project cost is estimated at Rs.670 crores which is being funded with Term Loan of Rs.320 crores (47.76%), PWD Maharashtra, Ministry of Road Transport and Highways (MORTH)

support under Hybrid Annuity Model (HAM) of Rs.268 crores (40%), promoters contribution of Rs.82 crores (12.24%) on DER of 3.90:1.

10. The term loan allocation from various banks and IIFCL for the proposed project is being financed by a syndication of loan. As part of the consortium of Lenders, IIFCL has sanctioned an amount of INR 134 Cr to PAHPL and out of which INR 73.44 Cr has been disbursed till 31st May 2020.

7. CONCESSIONAIRE:

11. The Ministry of Road Transport and Highways, Government of India through Public Works Department (PWD), Government of Maharashtra has awarded the project to M/s Parsuram Arawali Highways Private Limited (PAHPL), as concessionaire for development of the existing two lane road into Four Lane with Paved Shoulder of Parshuram Ghat-Arawali section of NH-66 (erstwhile NH-17) from Km 205/400 to Km 241/300 (Design length 34.450 Km) in the state of Maharashtra under NHDP-IV (Hybrid Annuity) basis for a Concession Period of 17 Years which includes construction period of 730 days i.e. 2 Years and Operation Period of 15 Years.
12. The Concession Agreement was signed on 04th day of October 2016 between Public Works Department, Maharashtra and M/s Parsuram Arawali Highways Private Limited (PAHPL).

8. EPC CONTRACTORS:

13. M/s Parsuram Arawali Highways Private Limited (PAHPL) has signed the EPC contract agreement with M/s Chetak Enterprises Limited and M/s Eagle Infra India Ltd. on 24th November 2017 and the EPC cost is INR 605 Cr.

9. INDEPENDENT ENGINEER:

14. M/s Bloom Companies LLC in association with Credible Management & Consultants (P) Ltd. has been appointed as the independent Engineer for the project.

10. LENDER'S ENGINEER:

15. The sub-project is under construction, M/s SJA Industries Consultants Pvt. Ltd. has been appointed as Lender's Engineer for the project M/s Parsuram Arawali Highways Private Limited (PAHPL). As per the Lender's Engineer report up to the month of February 2020 the physical progress of the project is 30%.

ENVIRONMENTAL SAFEGUARDS

11. ENVIRONMENT SAFEGUARDS COMPLIANCE REVIEW

16. The environmental due diligence (EDD) report focuses on the status and review of the applicable environmental regulatory requirements, compliance to the regulatory requirements, review of the environment related sub-project documents, implementation to the Environmental Management Plans (EMPs), institutional arrangements for implementation and monitoring of environmental mitigation measures, EMP planned for operation phase, environment, health & safety (EHS) related clauses in agreements, health and work safety measures, status of plantations, safety and emergency preparedness plan. The EDD also reviews the environment & social management system of the sub-project developer.

12. APPLICABILITY OF ENVIRONMENTAL IMPACT ASSESSMENT NOTIFICATION

17. It is required that the project meets the applicable national guidelines / regulations relating to the environment, occupational health and safety and social issues. The project should have necessary clearances as well as permits and approvals for project implementation and suitable environmental management plans.
18. National Highway projects up to 100 km involving additional right of way or land acquisition up to 40 meters on existing alignments and 60 meters on re-alignments or by-passes are exempted from the purview of the Environmental Impact Assessment Notification, 2006 of Government of India. The total length of the sub-projects is approximately 34.450 km, therefore, PAHPL does not require environmental clearance and is not required to conduct an Environmental and Social Impact Assessment (ESIA) as a statutory requirement. A detailed Environmental Management Plan (EMP) has been prepared for the sub-project, based on the impacts envisaged and the EMP is being implemented at the sub-project.

13. APPROACH TO THE ENVIRONMENT SAFEGUARDS DUE DILIGENCE REPORT:

19. The Environmental Due Diligence Report (EDDR) reviews the available documents and assesses the compliance of the sub-project with respect to environmental safeguards; regulatory clearances; environmental impacts and management measures; EMP implementation; Health, Safety and Environment (HSE) measures; and categorization of sub-project on the basis of above review.
20. The following documents were referred in order to prepare Environmental Safeguards Due-Diligence Report:
 - Project Information Memorandum (PIM)

- Concession Agreement
 - Detailed Project Report of PAHPL
 - Project Statutory Approvals/Permits
 - Environment, Health & Safety Plan and its implementation
 - Lender's Independent Engineer (LIE) Report (11th Lender's Engineer Report, 24th February 2020)
 - Project HSE Documents
 - Labour License & insurance
 - Contract Documents
21. The environmental safeguard due-diligence study was carried out for the sub-project on the basis of understanding of project scope based on information and documents provided by Concessionaire.
22. On review of the documents / information related to the sub-project, the impacts of the PAHPL on environment are envisaged, which are given in the next sections of the ESDDR. The sub-project is mitigating the environmental impacts at the site with various measures and an EMP is available for PAHPL.

14. COMPLIANCE OF PAHPL TO THE ESSF OF IIFCL:

23. The Environmental and Social Safeguard Framework (ESSF) provides the enabling mechanism to IIFCL to deliver its policy objectives and applies to projects funded by IIFCL throughout the project cycle. The ESSF defines procedures, roles, and responsibilities, at various project milestones for managing the adverse environmental impacts.
24. The environmental due diligence for PAHPL has been done as per requirements of direct lending scheme. The environmental safeguard risks during construction phase have been assessed and risks during operational phase have been evaluated. PAHPL is under construction and following the national regulations and guidelines. There does not seem to be any significant risk for either IIFCL or DFI involved. The environmental measures being implemented at the sub project are proposed in the form of structured EMP with monitoring indicators to PAHPL for both construction and operation phase of sub-project.
25. The analysis of the documents provided by PAHPL indicate that it is compliant to the requirements of IIFCL's ESSF under direct lending scheme and has adequate arrangement for EMP implementation on site.

15. POLICY, LEGAL AND REGULATORY REQUIREMENT:

26. PAHPL does not fall under the schedule of EIA Notification, 2006 that lists projects or activities requiring prior environmental clearance. PAHPL is required to comply with the applicable guidelines relating to the environment, occupational health and safety in addition to complying with local pollution control board regulations. The statutory permits/clearances related to environmental aspects obtained/to be obtained from regulatory authorities as part of PAHPL development were assessed and current status of availability of such permits/clearances are given in Table 3 below:

Table 3: Status of Regulatory Permits/ Clearances Obtained related to Environmental Safeguards

S. No.	Permits/ Clearances	Statutory Authority	Current Status
1.	Environmental Clearance	Ministry of Environment, Forests & Climate Change (MoEF&CC), New Delhi	Not Applicable. As the sub-project length is below 100 km (~34.450 Km), this is exempted from obtaining environmental clearance (EC) and conducting EIA. The EMP which was prepared as part of EHS manual is being implemented at the sub-project (Appendix 1).
2.	Forest Clearance	MoEF&CC and State Forest Department	Not Applicable. The project does not involve any forest land.
3.	Wildlife Clearance	MoEF&CC	Not Applicable. The Project area does not lie within an ecologically sensitive area and is not located close to any National Park/Wildlife Sanctuary. The location of Project does not contravene any international biodiversity or ecosystem conservation conventions. Therefore, it does not require wildlife clearance or permission.
4.	Tree cutting permissions	State Forest Department, Maharashtra	Sub-project involves cutting of about 14426 trees during highway expansion. Tree cutting permissions have been taken from office of Tree Officer and Range Forest officer, Chiplun vide letter dated 27.10.2017 - 30.10.2017 (for 13 villages) and 04.04.2018 (for Chiplun Village). The trees cutting permission at all 14 villages is attached in Appendix II .
5.	Consent to Establish	Maharashtra Pollution Control Board (MPCB), Maharashtra State	Consent to establish crusher vide consent No. RO-Kolhapur/ Consent/ 1710001057/ 520/ 17 dated 31.10.2017 valid for a period up to commissioning of the unit or 5 years whichever is earlier was obtained from Maharashtra Pollution Control Board, Regional office, Kolhapur. Consent to establish ready mix concrete plant was obtained vide consent No. SRO Chiplun/ Consent/1707000056 dated 01.07.2017 valid for a period up to commissioning of the unit or 5 years whichever is earlier was obtained from Maharashtra Pollution Control Board, Sub Divisional Office, Chiplun. Consent to establish casting yard was obtained vide consent No. SRO-Chiplun/Consent/1708000389/17

S. No.	Permits/ Clearances	Statutory Authority	Current Status
			dated 09.08.2017 valid for a period up to commissioning of the unit or 5 years whichever is earlier was obtained from Maharashtra Pollution Control Board, Sub Divisional Office, Chiplun.
6.	Consent to Operate	Maharashtra Pollution Control Board (MPCB), Maharashtra State	<p>Consent to Operate vide consent No.RO Kolhapur/Consent/805000435/215/18 dated 09.05.2018 valid upto 31.1.2024 for manufacture of Stone Metals (90,000 MT/month) under section 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 and Authorization/renewal of authorization under Rule 5 of the Hazardous (Management, Handling and Trans-boundary Movement) Rules, 2008 has been taken by PAHPL.</p> <p>Consent to Operate vide consent No. SRO Chiplun/Consent/1804001411/18 dated 27.04.2018 valid up to 31.01.2027 for RMC (capacity 10,000m³/p.m.) /RCC Girdles (10 No./Day) under section 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 and Authorization/renewal of authorization under Rule 5 of the Hazardous (Management, Handling and Trans-boundary Movement) Rules, 2008 has been taken by PAHPL.</p> <p>Consent to Operate vide consent No. SRO Chiplun/Consent/1805000097/18 dated 03.05.2018 valid up to 31.01.2027 for RMC capacity 25000 m³/month, consent No. MPCB/1905000545/19 dated 09.05.2019, valid upto 31.05.2022 for RMC capacity 600m³/day, MPCB/1905000547/19 dt. 09.05.2022 valid upto 31.05.2022 for RMC capacity 600m³/day, MPCB/1905000548/19, dated 09.05.2019, valid upto 31.05.2022 for RMC capacity 600m³/day under section 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 and Authorization/renewal of authorization under Rule 5 of the Hazardous (Management, Handling and Trans-boundary Movement) Rules, 2008 has been taken by PAHPL.</p> <p>References to these consents are given in Appendix III.</p>
7.	Borrow Area Permissions	District Administration Ratnagiri, Government of Maharashtra	PAHPL has informed that it will use majority of the material required for construction from material obtained from cut and fill areas within the alignment. It had identified nine locations to be used for borrow areas. The sample copies of permissions are given in Appendix IV.
8.	Permission of land for establishing Quarry, Stone Crusher, Hot	District Administration Ratnagiri, Government of Maharashtra,	Permission for setting up stone crusher, Hot mix Plant, Concrete plant, labour camp and site office is procured from gram Panchayats (Appendix V).

S. No.	Permits/ Clearances	Statutory Authority	Current Status
	Mix Plant, Concrete Plant, Labour Camp and site office	Village Panchayat	
9.	Use of Explosive	Joint controller of Explosives, West Circle, Mumbai & District Magistrate, Ratnagiri	License No. E/WC/MH/22/1546 (E37975) dated 07.05.18 from Joint controller of Explosives, West Circle, Mumbai, No objection certificate received from the Office of the District Magistrate, Ratnagiri vide letter No.NO/DC/Home-1/SR/07/2018 dated 12.03.2018 (Appendix VI).
10.	Installation of HSD Pump	District Magistrate, Ratnagiri	NOC was obtained from Addl. District Magistrate, Chiplun vide Ref. No.NO/DC/Home-I/SR/15/2018 on 17.11.2018 and valid up to 28.02.2020. (Appendix VII). As informed by the PAHPL officials, application is being submitted for its renewal.
11.	Water Use Permission	Ratnagiri Irrigation Department, Maharashtra	Permission to draw water from Vashishthi river for drawing 150000 LPD has been obtained by Developer (Appendix VIII). The bill for water lifting is raised by the concerned department periodically which is paid by the developer.
10.	Labour License & Insurance	Office of Licensing Officer & Regional labour Commissioner (Central), Ministry of Labour & Employment, Vasco da Gama, Goa.	Permission to employ up to 200 workmen for building or other construction works vide Licence No. CLRA/RLCGOA/2019/L-59 dated 12.07.2019 from Office of the Licencing Officer, Government of India, Goa valid up to 11.07.2020 (Appendix IX). Renewal application has been submitted to Office of Licensing Officer & Regional labour Commissioner (Central), Ministry of Labour & Employment, Vasco da Gama, Goa. Developer has been informed to share the renewal of the labour license. PAHPL has valid labour insurance policy valid up to 29/03/2021 (Appendix X).

16. IMPACT ASSESSMENT OF SUB-PROJECT

27. Project specific EMP prepared for PAHPL identifies the impacts of the sub-project and proposes management measures to minimize/mitigate those impacts. The main impacts envisaged due to various activities at the sub-project are summarized in the paragraphs below:

28. Impact on Land Environment: The sub-project involves strengthening and widening of the existing two lanes to four lane highway. During construction phase, the topography at sub-project location will change due to excavation of cuts and fills for project road and construction of project related structures. The impacts are temporary and are manageable with mitigation measures which are given in next section.

29. Impact on Water Resources: There is a perennial water course crossing the stretch of four laning of Parshuram Ghat-Arawali Section of NH-66. The river in the stretch is Vashisthi River. As per the EMP, all the works across these types of water courses are planned to be execute other than the water flow period and is to be completed before the high water flow starts. If incomplete, the

works will be kept pending during the flow period and no disturbance to the water flow will be done. Adverse impact on surface and ground water resources is envisaged temporarily during construction phase due to increased sedimentation load because of construction activities, waste water discharge from labour camps, fuel/oil from construction vehicles etc. During the operation stage the leakage or spillage from vehicles damaged, overturned or just badly maintained may also lead to contamination of water bodies. EMP is available to manage these impacts.

30. Impact on Air Quality: The setting up of camp including crusher & ready mix concrete plant, and up-gradation works at sub-project stretch shall involve generation of dust and release of other pollutants leading to the localized degradation of air quality. All the belt conveyors are covered with canopy to control the dust pollution, ready mix concrete plant is well equipped with the cartage filters. All aggregate stock yards are provided with water sprinkling system. Mitigation measures are in place to manage these not very significant and temporary impacts.
31. Impact on Noise Environment: Impact on noise environment is envisaged during both construction and operation phase. In construction phase, all DG Sets are having acoustic attachments to control noise at source. PAHPL has proactive plant and machinery maintenance schedule to control noise and air pollution.
32. Impact on Biological Environment: No National Park or Wildlife Sanctuary is located within close proximity of the project road and there is no notified animal corridor/migration route is present in the project area. No Reserve Forest is located along the project road. About 14426 trees are likely to be affected in up gradation of National Highway for which permissions from the Forest Department has been obtained. No significant impacts on fauna are anticipated at the sub-project. The repair and up gradation of minor bridges will cause some contamination of the surface water due to spillage of construction material, sediment loading & increased turbidity downstream of the bridge location. This may impact aquatic flora and fauna temporarily. Necessary mitigation measures have been recommended at locations of structure where construction/maintenance is proposed.

17. IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLANS

33. The status of EMP implementation is elaborated in the subsequent paragraphs on the basis of information received from the PAHPL. EMP is being implemented at PAHPL and the status of implementation is being maintained at site and communicated to PAHPL corporate level as well as to statutory agencies on quarterly basis. PAHPL has its own Environmental, Safety and Social Management System Manual, which is applicable at the project. The EMP implementation status on the basis of documents/information shared by developer is given in Table 4. The responsibility for implementation of EMP lies with the developer PAHPL. EMP for the operational phase of the project will be implemented as per Table 5.

Table 4: Status of EMP Implementation at PAHPL

Issues	EMP	Status of EMP Implementation
Avenue tree cutting and Plantation & Median Plantation	<ul style="list-style-type: none"> Landscaping shall be done within 3-4 months from the completion of the work. Plant species suitable for the areas shall be planted at the onset of monsoon season. The plants shall be provided adequate protection from animals and proper monitoring shall be carried out to assure their growth. 	<p>Tree cutting permissions have been taken from office of Tree Officer and Range Forest officer, Chiplun.</p> <p>Sub project developer has informed that tree plantation and landscaping will be taken upon substantial road /structural works completion. Plantation will be done as per the IRC SP 21 and as per the Schedule-C of Concession Agreement.</p>
Borrow pits and Quarry sites	There are nine borrow areas identified at PAHPL.	<p>PAHPL has informed that the material obtained from the cut and fill areas within its alignment will cater to the majority of material required for construction. However, it has identified nine locations to be used for borrow areas.</p> <ul style="list-style-type: none"> Two locations had been identified in Terav Village at inside lead at 1.5 km and 2 km (approved for embankment material for 18000 cum and 23625 cum quantity respectively) The third location is identified at Mirjoli Village (approved for embankment material for 9000 cum quantity). The fourth location is identified at Walope village (approved for embankment material for 6000 cum quantity). The two locations are identified at Kapsal village (approved for embankment material for 18000 cum quantity and subgrade material for 11963 cum quantity). The seventh location is identified at Kamthe village (approved for subgrade material for 15300 cum quantity) Two locations are identified at Nirbade village (approved for embankment material for 9288 cum quantity and for subgrade material for 9306 cum quantity). <p>The above, nine borrow areas location are identified by PAHPL and presently PAHPL has used most of cuts and fills quantity as well as Fly-ash for road construction.</p>
Site for storage and construction camp	<ul style="list-style-type: none"> Storage of HSD, as per the stipulated guidelines. Besides these, emergency response plan will be in place towards meeting unforeseen emergencies. Trained personnel will be handling such materials and care will be taken so that spills are abated and in case of spills, immediately they are contained. 	<ul style="list-style-type: none"> PAHPL has prepared an EHS plan including emergency response plan which is being implemented Storage is done at designated areas, with markings and signboards. Trainings are imparted to labour and staff and forms part of the HSE performance indicators.

Issues	EMP	Status of EMP Implementation
Sewerage and solid waste disposal.	<ul style="list-style-type: none"> Worker camp must not be located within 1 Km of the major village. Water supply and washing facilities should be provided. Provision for the waste disposal should be provided. 	<ul style="list-style-type: none"> Labour camps are located 1 km from village. Solid waste from camp is disposed as per EMP. Water supply facility has been provided.
Traffic management	<ul style="list-style-type: none"> All the hauled material to be covered while being transported. Construction related transportation activity to be uniformly distributed during the night to minimize the noise impact. Routine check of vehicles used for transportation and their proper maintenance to minimize vehicular pollution. 	<p>Measures are being undertaken to reduce pollution:</p> <ul style="list-style-type: none"> Transport activity in the village vicinity is reduced. Proper maintenance ensured for vehicles used for transportation. Routine checkup by Mechanical Dept. has for use vehicle/Machinery
Noise level	<ul style="list-style-type: none"> Provision of Ear Plugs to heavy machinery operators. Constructions yards are more than 100m away from the residential areas. 	<ul style="list-style-type: none"> Workers are provided with personal protective equipment (PPE). PAHPL has informed that noise monitoring is being carried out as part of the EHS plan. The parameters are found to be within permissible limits. A sample of the monitoring report is given in Appendix XI.
Air Quality	<ul style="list-style-type: none"> Trucks will carry construction material for which emission of air pollutants will increase. All the vehicles deployed for construction of the project will have to keep "Pollution under Control" (PUC) certificates. DG sets will also emit air pollutants in the area during construction period. The emission generated during construction will be temporary and localized in nature. Vehicles carrying construction material shall be covered to avoid spilling. Mixing equipment shall be sealed and equipped with dust removal device. Water will be sprinkled in morning and evening hours at the construction yards and the unpaved sections of the road. 	<ul style="list-style-type: none"> PUC certificate is checked for all construction vehicles. Air quality monitoring is done at sites on quarterly intervals. Vehicles are covered to avoid spilling of construction material. Mixing equipment is sealed to control dust. Water sprinkling is done at site to control dust. Maintenance schedule is in place to control further environmental damage in case of break-down All belt conveyors are covered with canopy to control the dust pollution PAHPL has confirmed that Ambient Air Quality has been planned to be monitored at site. A sample of the ambient air quality monitoring is given in Appendix XI.
Water Quality	<ul style="list-style-type: none"> Water to be sourced from valid sources During construction it will be ensured that contractor does not dispose off debris in water bodies. The majority of the project stretch is plane & horizontal land which will act as water logging areas during the rainy seasons and may cause the breeding of 	<ul style="list-style-type: none"> PAHPL is water drawn from the river and sufficient water available along the project site. Hence, PAHPL has not taken Bore well permission from the Authority as it is not required. All debris and other unsuitable material are being reused in haul road making purpose.

Issues	EMP	Status of EMP Implementation
	<p>the vectors in the area.</p> <ul style="list-style-type: none"> Uncontrolled digging of approved Borrow pits in the areas will be avoided to prevent water accumulation which results in breeding of disease causing vectors in the area. 	<ul style="list-style-type: none"> The entire project stretch is almost covered by adequate drainage network which allows free water flow without obstructions. No uncontrolled digging was allowed in borrow areas. PAHPL has informed that water quality monitoring is being carried out at site. The water quality parameters are found to be within permissible limits. A sample of the water quality monitoring is given in Appendix XI.
Occupational Health and Safety	<ul style="list-style-type: none"> Labourers shall be equipped with proper safety gears like helmets, gloves and gum boots. Periodic health check-up of construction workers. Training of workers to be ensured 	<ul style="list-style-type: none"> All workers and labourers are equipped with all PPE's like helmets, gloves and gum boots. Periodical health check-up is being conducted as per prescribed schedule of health check-up calendar. HSE induction trainings are organized for labour and staff at a number of levels.
Prevention of erosion and scouring	<ul style="list-style-type: none"> Stabilizing the embankment with appropriate technique immediately after placing. 	<ul style="list-style-type: none"> Soil stabilization is use for embankment work & is in progress
Drainage system	<ul style="list-style-type: none"> Adequate care to be taken for the purpose of free flow of flood discharge in the design stage itself. There are 1 major (fly overs) and 10 minor bridges which are to be constructed/strengthened along the project corridor to allow free flow of the natural drainage water in the area. 	<ul style="list-style-type: none"> Drain and service road P&P is approved as per IRC Specification and its free flow of flood discharge in the design stage itself. Construction of drain along the road on both the sides is in progress. Highway Construction (PQC) works is in progress
Utilization of Fly Ash	Testing will be done at site	Total quantity of fly-ash used is 12160 MT and sourced from Jaigarh, Dist. Ratnagiri, as per requirement and the testing is done at site.

Table 5: Proposed EMP for Operation of PAHPL

Impact/Issues	EMP	Monitoring indicators
Noise	<ul style="list-style-type: none"> Multi layered plantation to serve as mitigation option for operation phase Effective traffic management and good road condition shall be maintained to reduce the noise level Speed limitation and honking restrictions may be enforced near sensitive locations. Create awareness in locals and drivers through programmes. 	<ul style="list-style-type: none"> PAHPL has traffic management and road in good condition maintained to reduce noise level On site observations Records of safety week
Embankment protection	<ul style="list-style-type: none"> Periodic maintenance of stabilizing measures at embankments like turfing etc 	On site checks & observations
Water logging	<ul style="list-style-type: none"> Regular maintenance and cleaning of drains 	On site checks & observations

Impact/Issues	EMP	Monitoring indicators
Maintenance of Safety	<ul style="list-style-type: none"> Traffic control measures to be enforced strictly Monitor and ensure that all safety provisions included in design and construction phase are properly maintained Highway patrol units for round the clock patrolling to be available at site One ambulance to be available at toll plaza One tow-away facility for the break down vehicles 	<ul style="list-style-type: none"> Traffic control measures and suggestions are given. Safety signage to be displayed and maintained at site Accident incident reports to be maintained at site.
Avenue / Median Plantation & Maintenance	<ul style="list-style-type: none"> Avenue plants are proposed along the project stretches as per IRC-SP-21:2011. The avenue plants proposed to be planted on either side of the road in two rows. Planted trees and shrubs in Avenue and Median Plantation to be properly maintained Tree survival list to be maintained for plantation effectiveness 	<ul style="list-style-type: none"> Records of trees planted to be maintained at site Survival records to be maintained at site

18. HEALTH AND SAFETY

34. PAHPL has an Environment, Health & Safety Management Plan (Appendix I), which elaborates the organizational structure roles and responsibilities of HSE staff; traffic safety and management practices; work place safety etc. PAHPL follows the safety guidelines and conducts safety training programmes as defined in the procedures and maintains records.

35. Following measures have been adopted in respect of traffic safety & management.

- Enforcing strict safety system with all necessary precautions like provision of personal protective equipment, first aid box, conducting toolbox meetings.
- Encourage, support and implement suggestions/methods aimed and continuous improvement of safety at work & control of health hazards.
- Organize safety promotional activities like display of safety posters, slogans, and other educative materials, competitions & award, as well as safety day celebration for better safety implementation.
- Ensuring channelized flow of traffic by flagman giving directions to traffic for avoiding mishaps & traffic jam in activities of maintenance of existing carriageway.
- Ensure by regular inspections and surveys and other techniques that facilities/
- Equipment are operated and maintained to high standards of safety so that risk of
- Injury to personnel, breakdown and damage of property is minimized and high quality of output is achieved coupled with safety.
- Monitoring the safety on regular basis with preventive & corrective actions.
- The safety devices and signage are maintained regularly by safety teams deployed in the portions where the work is in progress.
- First aid boxes and firefighting systems are maintained at sub-project camp sites.

36. PAHPL has adequate institutional arrangement to look after HSE related aspects. The organizational chart is given as Appendix XII.

19. GRIEVANCE REDRESSAL MECHANISM

37. PAHPL has devised guideline for Grievance Redressal Mechanism (GRM). Record of any grievance or demand received from locals is maintained at the site office. Developer has informed that any grievances received, will be addressed as per Concession Agreement. The Concessionaire is maintaining register at site open to public access for recording of any complaint.
38. During discussions it was informed, that Grievance Redressal Committee (GRC) has been constituted at the project site to ensure that the affected person's grievances, on both environmental and social concerns, are adequately addressed. As informed the project proponent the grievance is being maintained if any at the register at site for taking up complaints/concerns of the locals, if any. The GRC comprises of Project Head, site in charge followed by site Engineer/EHS officer and Site Supervisor. As informed by the concessionaire, the concerned local communities have already been informed about the project (via formal/informal discussion with panchayat heads, local community representatives).
39. Redressal of Public Grievances will be done as per Article 40 of the Concession Agreement during operation phase. The Concessionaire has to maintain complaint register for recording public grievances.

20. ENVIRONMENTAL SENSITIVITY

40. The environmental sensitivity of PAHPL has been assessed by reviewing various documents and consultation with the developer. The environmental sensitivity assessment is given below:
- The sub-project is being developed on the existing right of way. At certain places (intersections and lay byes) additional land is required.
 - The sub-project sites are not located in any protected area like wildlife sanctuary / national park or in close proximity of any eco-sensitive area.
 - Approximately 14426 trees are to be cut at the sub-project and tree cutting permissions were taken from Forest Department.
 - As informed by the concessionaire, no important cultural or heritage sites are getting affected due to the sub-project.
 - The sub-project has the necessary approvals and permits from regulatory authorities.

- The impacts of the sub-project are temporary in nature and are manageable with EMPs.

21. PROJECT AGAINST THE PROHIBITED INVESTMENT ACTIVITIES LIST

41. The sub - project does not involve any prohibited activity as per the Prohibited Investment Activities List (PIAL) of ADB.

22. CATEGORIZATION OF SUB-PROJECT

42. The sub-project can be classified as Category B based upon ADB's EA requirements as per their Safeguard Policy Statement (2009). This classification is based on the review of the available documents with respect to the environmental sensitivity due to project activities.

23. CONCLUSION AND RECOMMENDATIONS

43. On the basis of review of the available information and communication with PAHPL officials it can be concluded that the concessionaire PAHPL is complying with the statutory requirements as per the national and state guidelines and regulations. PAHPL is committed to protection of the environment while performing its activities. The 34.450 km road strengthening and widening project in the State of Maharashtra is unlikely to pose any adverse environmental risks given the nature of the activities.
44. There are no legally protected areas, cultural heritage sites and forest land located within and/or in close proximity to the sub-project. However, the sub-project activities have reversible environmental impacts which have been managed.
45. Site visit to the sub project was conducted by Lenders Independent Engineer during February 2020. During preparation of due diligence report, site visit could not be undertaken due to the pandemic of COVID-19. Site visit by IIFCL staff will be taken up only when the COVID-19 situation improves and it is conducive and safe for IIFCL staff to conduct a site visit.
46. Based upon the available documents and site visit of LIE, it is concluded that the concessionaire has undertaken adequate environmental safeguard measures. The conclusions for the sub-project are given below:
 - The sub-project has been planned as per the National and State Government requirement and not in anticipation to ADB operation.
 - The project site is not located in an ecologically sensitive area.

- The sub-project is being developed in the existing ROW and some additional land is being acquired for interchange and lay byes.
 - Approximately 14426 numbers of trees will be cut for widening. The concessionaire will develop an elaborate plantation scheme with the Forest Department to compensate for the tree cutting. Tree Plantation and landscaping shall be taken upon substantial road /structural works completion. Developer has been informed to keep a record of plantations and survival rate
 - The sub-project has the required national and local level permits and approvals for project implementation.
 - Concessionaire has confirmed continuous compliance with the terms and conditions stipulated while according statutory clearances /approvals /consents. Concessionaire has been informed to implement the EMP and maintain a record of status of implementation.
 - The institutional arrangement available for the implementation of environment, health & safety at sub project appears to be adequate.
 - The concessionaire is maintaining safety at the site as per the management plans. The EMPs are undertaken to minimize any significant negative impact on environment.
 - Utility shifting at site is in progress.
 - Approximately 96.52 % land is available with concessionaire and balance land acquisition is in process by Authority.
 - As per the LIE's site visit and on the basis of discussion with the project developer, the implementation of EMP was found to be adequate.
 - After approval from the Bank the ESDDR will be uploaded for public disclosure.
47. Based on the due diligence findings, it can be deduced that the sub-project has no significant environmental safeguard issues. Based on documentary evidence provided by the Developer and its assessment, the sub project is meeting the requirements of ADB's Safeguard Policy Statement (SPS), 2009. During the proposed site visit by IIFCL team, if any observations on safeguards compliance are found, those will be communicated to ADB and a suitable corrective action plan will be prepared, if required. The sub-project, therefore, does not appear to involve any kind of reputational risk to ADB funding on environmental safeguards.

SOCIAL SAFEGUARDS

SOCIAL SAFEGUARD DUE DILIGENCE REPORT (SSDDR)

24. PURPOSE OF THE SSDDR:

48. The social safeguard due diligence study was carried out with the information and documents received from the concessionaire Parshuram Arawali Highways Private Limited (PAHPL) to assess the Social safeguards adequacy of the project with the applicable National Policies. The report has been prepared as per the documents/information received from the concessionaire. In order to be eligible for funding from ADB, IIFCL has prepared the Social Safeguards Due Diligence Report (SSDDR) for the sub-project PAHPL.

25. OBJECTIVE OF SSDDR:

49. Social Safeguards due diligence study is carried out to assess the social safeguards monitoring compliance status of the project as per the applicable National policies/procedures followed, as per the discussions as well as the information received. The objective of this Social Safeguard Due Diligence Report (SSDDR) is,
- To assess the likely social impacts and its minimization/mitigation majors adopted with respect to land acquisition, compensation, involuntary resettlement, indigenous people affected, common property resources affected if any, in terms of rehabilitation and resettlement, employment generated, and community development activity under taken:

26. APPROACH AND METHODOLOGY:

50. The social safeguard due diligence report for the project has been initiated after review of Project Information Memorandum (PIM), DPR, all other clearances, NoCs, licenses, Gazette notification, RoW hand over letter from authority, discussion with the project developer PAHPL and various permits and approvals relating to the project to understand the salient features of the project and social concerns.
- Discussion with the subproject developer over phone regarding the implementation status and progress of the project at site;
 - Some of the available documents have been reviewed, like, Detail Project Report (DPR), Project Information Memorandum (PIM), Concession Agreement (CA), Engineering Procurement & Construction (EPC) Contract of the project, Lenders Independent Engineers (LIE) Report, Right Of Way (RoW) hand over letter, labour licenses and most of the applicable clearances/permits and No Objection Certificates (NoCs) applicable for the project;
 - During the current prevalent pandemic situation the ESDDR has been prepared based on the site visit conducted by LIE during the month of February 2020;

51. The following documents/Reports/Licenses and notifications were referred in order to prepare the Social Safeguard Due Diligence Report:

- Project Information Memorandum (PIM);
- Detailed Project Report (DPR);
- Lender's Independent Engineer's Report February 2020 ;
- Project Statutory Approvals;
- Project HSE Documents;
- Concession Agreement(CA) ;
- Right of Way Hand over letter;
- Gazette notification;
- Labour License ;
- EPC Work Orders/;
- Discussion with developer;

27. PROJECT AGAINST THE PROHIBITED INVESTMENT ACTIVITIES LIST:

52. The Subproject PAHPL does not involve any prohibited activity as per the Prohibited Investment Activities List (PIAL) of ADB.

28. SOCIAL IMPACTS OF THE PROJECT:

28.1. LAND ACQUISITION IN THE PROJECT

53. Land acquisition is not in the scope of the project developer and it is under the purview of the Concessioneing Authority, Public Works Dept. (PWD), Maharashtra. Total land required for the project is 180.908 Ha, out of which 174.69 Ha of land is in the possession of Concessionaire for the construction of sub project. There was no involuntary land acquisition.

54. During the discussion it was informed that the land acquisition to the extent of 40 m Right of Way (RoW) for 2 to 4-laning of project is under process. Overall 96.52 % of land was made available to the project developer for construction of the project road. The rest of land is being acquired by the Concessioneing Authority, for which 3D has been completed and is in the advanced stage of land acquisition.

55. Land acquired for the project is done as per NH Act 1956. Compensation is paid as per The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013.

56. Land acquisition process was initiated prior to IIFCL's involvement and not in anticipation of ADB financing and that IIFCL was not involved in the rehabilitation and resettlement activities. As confirmed by the project developer there is no rehabilitation and resettlement in the project.

57. Since the land acquisition was not in anticipation of ADB or IIFCL financing, ADB SPS on involuntary resettlement does not apply.

28.2. IMPACT ON STRUCTURE:

58. During the project design phase, efforts have been made to avoid acquisition of structures. However, in some cases structures need to be acquired for the project. As confirmed by the project developer there are 369 No's of structures which are being partially affected due to the widening of the project road.
59. As documented in the LIE report, the notices for removal of these structures are already issued to each individual owner. Removal of the structures is in progress. The owners have willingly initiated the shifting of the structures and out of 369 structures about 327 structures have so far been demolished and the rest are under process.
60. As confirmed by the project developer, there was no involuntary land acquisition or permanent loss of shelter due to land acquisition. Most of the structures are partially impacted and cost of the shifting is being borne by the Authority.
61. The impacted structures and assets are being acquired/shifted after the Gazette Notifications as per the statutory process and accordingly compensation paid by the Concessioneing Authority as per the LARR Act 2013. During the discussions with the project developer it was told that, owners have willingly shifted the partially affected structures and some owners have taken the assistance of the project developer by means of man and machineries for shifting. The detail of structures affected is given in the table-6 below.

Table 6 Details of Structures affected in the project:

Sr.No.	Type of Structure	Number of partially affected Structure
1	Residential	210
2	Commercial	85
3	Other	74
4	Encroachers	0
	Total	369

62. The affected people are being compensated for loss of land and structures, according to the policies and procedures of The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (LARR) Act 2013.

28.3. IMPACT ON RELIGIOUS PROPERTIES:

63. During the project design phase, efforts have been made to avoid acquisition of common properties. However, in some cases common properties need to be acquired for the project. All such properties that can be replaced will be relocated at a nearest available site, in consultation with local communities. As documented in the LIE report there are 23 No's of religious structures are affected due to the widening of the project road, out of which 15No's of religious structures are shifted and the rest are under process.

28.4. REHABILITATION AND RESETTLEMENT IMPACT IN THE SUB-PROJECT:

64. As informed by the project developer, that there is no rehabilitation and resettlement impact in the project.

28.5. IMPACT ON INDIGENOUS PEOPLE:

65. As informed by the project developer no indigenous people affected in this sub-project.

29. GRIEVANCE REDRESSAL MECHANISM:

66. During the discussions it was informed, that Grievance Redressal Committee (GRC) has been constituted at the project site to ensure that the affected person's grievances, on both environmental and social concerns, are adequately addressed. As informed the project proponent the grievance is being maintained if any at the register at site for taking up complaints/concerns of the locals, if any.

67. The GRC comprises of Project Head, site in charge followed by site Engineer/EHS officer and Site Supervisor. As informed by the concessionaire, the concerned local communities have already been informed about the project (via formal/informal discussion with panchayat heads, local community representatives).

30. LOCAL PEOPLE EMPLOYED:

68. It has been confirmed by the concessionaire that employment opportunities are being provided to the local people for various skilled, unskilled and semi-skilled activities like Junior Engineer, Electrician, Security Guards and Office Assistants, Driver, JCB Operators.

69. As information provided by the concessionaire they have given job opportunity to more than 130 local people. Based on the available skill and qualification requirements, employment preference has been given. The details of local people employed in the projects are given in **Appendix-XIII**.

31. LABOUR LICENSE OBTAINED BY THE SUBPROJECT DEVELOPER:

70. The EPC Contractor M/s Chetak Enterprise Ltd. has received the Labour license from the Licensing Officer and Regional Labour Commissioner, (Central), Goa, Govt. of India, Ministry of Labour & Employment for the Govt. of India, Labour Dept. for Rehabilitation and up-gradation of NH-66 (erstwhile NH-17) from Km. 205/400 to Km. 241/300 (Parshuram Ghat-Arawali Section) to four lanes with Paved Shoulder (Total Length 34.450 Km) by Two / Four laning on BOT (Hybrid Annuity)

71. The EPC Contractor on behalf of the principal employer has taken labour license for the project, detail of the labour licenses for 200 workmen, is attached as Annexure IX. The subproject developer has taken employ compensation insurance policy for the project PAHPL, the detail of the insurance policy is attached as Annexure-X.

72. The EPC contractor Chetak Enterprises Ltd. has obtained license for Employees' Provident Fund Organization (EPFO), Udaipur to cover its employ under provident fund for administrative

convenience and to facilitate compliance in respect of recruited employees/ workers and for this a challan has been generated with effect from 12/04/2020. The EPFO challan obtained by the company is given under **Appendix-XIV**.

32. DISCLOSURE:

73. On approval of the ESDDR by ADB, the report will be uploaded for public disclosure on IIFCL and ADB's website.

33. COMMUNITY DEVELOPMENT ACTIVITIES UNDERTAKEN:

74. As information provided by the concessionaire, PAHPL has under taken some of the community development activates during the construction stage of the project. The EPC contractor celebrated road safety awareness week, blood donation camp, free medical check-up camp , health and hygiene awareness camps has also been under taken.
75. As information provided by the concessionaire, some of the community development initiatives has been undertaken which includes:
- Due to Heavy rain and flood like situation a small dam has been washout at Tiware village in the project area, concessionaire has supported the village by providing Man and Machinery at the site;
 - Distribution of Grocery items to 150 families for two weeks during the COVID-19 pandemic.

34. MONITORING AND EVALUATION:

76. On behalf of Public Works Department (PWD), Maharashtra the appointed Independent Consultant M/s Bloom Companies LLC in association with Credible Management & Consultants (P) Ltd.is monitoring and submitting the quarterly compliance monitoring report to PWD, Maharashtra for the subproject which also includes the status of pending land acquisition.
77. On behalf of Lenders the Lenders Independent Engineer (LIE) M/s SJA Industries Consultants Pvt. Ltd. is monitoring the financial as well as physical progress of the project and submitting the Monthly Report to the lenders.

35. CONCLUSION:

78. Based upon the available documents and its desk review, it seems that the concessionaire has undertaken adequate measures for the implementation of the project at construction stage of the project. The conclusions for the sub-project is given below:
- The sub-project has been prepared by PWD, Government of Maharashtra as per its own funding requirement and not anticipation to ADB operation;

- Land acquired for the project is done as per NH Act 1956. Compensation is paid as per The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013;
 - There is no physical or economical displacement of people.
 - Land acquisition process was initiated prior to IIFCL's involvement and not in anticipation of ADB financing.
 - Since the land acquisition was not in anticipation of ADB or IIFCL financing, ADB SPS on involuntary resettlement does not apply.
 - There is no Rehabilitation and Resettlement in the project.
 - The subproject do not have any indigenous people in the project;
 - As a part of goodwill gesture and to reach the villagers in and around the project area, public interaction were carried out from time to time with the initiative of the Concessionaire like maintenance of dam and distribution of grocery items during the COVID-19 pandemic.
 - As informed by the project developer, after discussions with the local people, the affected cultural properties are being relocated by the concessionaire;
 - Local labours are being engaged in the construction activities for skilled as well as unskilled activities;
 - For administrative convenience of the project, the EPC contractor Chetak Enterprises Ltd. has obtained license for Employees' Provident Fund Organization (EPFO), Udaipur to cover its employ under provident;
 - On behalf of Lenders the Lenders Independent Engineer (LIE) M/s SJA Industries Consultants Pvt. Ltd. is monitoring the financial as well as physical progress of the project
 - The Subproject PAHPL does not involve any prohibited activity as per the Prohibited Investment Activities List (PIAL) of ADB.
 - Considering the socio-economic requirements of the project area it can be noted that the project would improve the quality of life for the rural population in the project area.
 - The Sub-project do not appear to involve any kind of reputational risk to IIFCL and the Asian Development Bank funding on social safeguards and is recommended for funding under the proposed project.
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Chetak Enterprises Limited.

No-1523 Mumbai Goa Highway Village-Kamthe, Taluka -Chiplun, Dist.Ratnagiri (MH) 415 605

**MINISTRY OF ROAD TRANSPORT & HIGHWAYS
GOVERNMENT OF INDIA**

**(NATIONAL HIGHWAY, PUBLIC WORK DEPARTMENT,
GOVERNMENT OF MAHARASHTRA)**

Project: Rehabilitation and up- gradation of NH-66 (erstwhile NH-17) from Km. 205/400 to Km. 241/300 (PARSHURAM GHAT-ARAWALI SECTION) to four lanes with paved shoulder in the state of Maharashtra under NHDP-IV on hybrid annuity mode.

CHETAK ENTERPRISES LIMITED

Environment, Health & Safety Plan



Chetak Enterprises Limited.

No-1523 Mumbai Goa Highway Village-Kamthe, Taluka -Chiplun, Dist.Ratnagiri (MH) 415 605

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No-1523 Mumbai Goa Highway Village-Kamthe, Taluka -Chiplun, Dist.Ratnagiri (MH) 415 605

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Chetak Enterprises Limited.

No-1523 Mumbai Goa Highway Village-Kamthe, Taluka -Chiplun, Dist.Ratnagiri (MH) 415 605

Details

Project Name:	Rehabilitation and up- gradation of NH-66 (erstwhile NH-17) from Km. 205/400 to Km. 241/300 (PARSHURAM GHAT-ARAWALI SECTION) to four lanes with Paved Shoulder in the state of Maharashtra under NHDP-IV on Hybrid Annuity Mode
Client:	Public Works Department, Government of Maharashtra
Independent Engineer	M/s Bloom Companies LLC in association with Credible Management & Consultants Pvt. Ltd.
Concessionaire	M/s Parshuram Arawali Highways Private Limited
EPC Contractor	M/s Chetak Enterprises Limited
Design Consultant	M/s Vasuprada Consultant LLP, New Delhi
Total Project Length	34.45 Km
Total Project Cost	INR 670 Cr

LIST OF CONTROLLED COPY HOLDERS

Copy No.	Name of the Copy Holder
1	Project Manager
2	EHSO
3	Road / Structure Incharge
4	Planning Incharge
5	QA / QC Incharge
6	Quarry and Crusher Incharge
7	P&M Incharge



1.0 OBJECTIVES

1. To determine broad parameters of EHS management at site.
2. Establishment & define individual responsibilities, hazard prevention & safety promotion responsibility at each level of the construction team.
3. Identify highly hazardous operations within the scope of work and specify integrated preventive measures to mitigate the same.
4. To ensure compliance with relevant applicable legislation.
5. Continual EHS performance improvement by directing focus on the key areas for improvement in a consistent manner.

2.0 PROJECT HIGHLIGHTS

- | | | |
|-----------------------------------|---|---|
| 1. Name / Identity of the Project | : | Four Laning of Parsuram Ghat to Arawli |
| 2. Job Number | : | |
| 3. Client | : | Public Work Department Maharashtra |
| 4. Location | : | No-1523 Mumbai Goa Highway Village-Kamthe, Taluka -Chiplun, Dist.Ratnagiri (MH) 415 605 |

5.0 Overall scope of work

- Excavation
 - Ordinary Soil
 - Ordinary Rock
 - Hard Rock
- Blasting
- Embankment Sub grade
- GSB
- WMM
- DLC
- PQC
- DBM / BM
- BC
- Concrete
- Reinforcement
- H.T. Strand (Restressing)
- Turfing
- Road marking
- Crash Barrier
- Stone Masonry / Pitching
- Backfilling with Granular Material



6.0 Budgeted period of the project : 24 Months

7.0 Budgeted manpower required : 200 No's

8.0 MAJOR PLANT & MACHINERY TO BE DEPLOYED (Tentative)

- Crushing Plants
- Hot mix plants
- WMM Plants
- Batching Plants
- Pavers
- Graders
- Dozers
- Transit Mixers
- Mobile Cranes
- DG Sets
- Excavators
- Concrete Pump
- Boom Placer
- Tippers
- Trailers
- Wheel Loaders
- Vibratory Rollers
- Water Tankers
- Weigh Bridges
- Mobile Service Van

3.0 LEADERSHIP AND COMMITMENT

Parshuram Arawali Highways Pvt Ltd Senior Management provides demonstrable management leadership and commitment through active participation in EHS activities.

Their leadership and commitments translate into necessary resources to develop, operate and maintain Parshuram Arawali Highways Pvt Ltd EHS Management System and to attain legal requirements.

We are committed to manage all its activities, risks to “As Low as Reasonably Practicable” (ALARP)

3.1 Visibility

The management will provide strong demonstrable visible leadership and commitments towards EHS by personal example and action. The Management will participate in EHS meetings, conduct site Inspections and EHS Audits, to encourage a positive attitude towards EHS.



No.	TASK	ACTION BY	COMPAIANCE TARGET	VERIFICATION DOCUMENT
1.	Project EHS Committee Meeting (Review performance against EHS plans, EHS Objectives & targets and any EHS issues)	PM / SM	Minimum frequency : One Month	Minutes of Project EHS Committee Meeting
2.	Project EHS Committee Inspection	EHS Committee Members	Minimum frequency : One Month	EHS Inspection Report
3.	EHS Review	Cluster Heads	During their Site Visit	Minutes of Project EHS Committee Meeting
4.	Internal EHS Audit	Cluster Heads / HOD –EHS	Once in Six Months	Audit Report including NCRs & Site Observations
5.	Motivation Giving Safety Certificates, with token gift to the “Best safety conscious personnel” of the month to recognise good EHS practices.	PM / SM	Monthly	Copies of Certificate

3.2 Proactive in target setting

The project management demonstrates pro-activeness in target setting by:

No.	TASK	ACTION BY	COMPAIANCE TARGET	VERIFICATION DOCUMENT
1.	Jointly develop and discuss improvement targets and indicators for each location with Construction Managers & EHSO. (e.g. Training of Workmen – Coverage, Inspection Compliance etc.)	PM / SM	Every Quarter	MOM of Project EHS Committee Meeting
2.	Jointly review the Incidence rate of First Aid Cases and set a target for reduction.	PM /SM	Every Quarter	MOM of Project EHS Committee Meeting
3.	Management involvement in Accident review and target setting.	PM, EHSM	As required / Monthly	Investigation Report

3.3 Company Culture

The management seeks to create and sustain a Company culture in which employees share a commitment to EHS.

No.	TASK	ACTION BY	COMPAIANCE TARGET	VERIFICATION DOCUMENT
1.	Put EHS as the “First agenda” of all review meetings at Headquarters, SBGs, Cluster & Projects.	PM / SM	All time	MOM



2.	Empowerment to Stop Work Employees are empowered to stop work when the situation warrants immediate action in view of imminent danger to life / property / environment. PM must appreciate and reward those employees whose prompt action helps avoid potential incident.	All	All Time	Verbal Verification
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3.4 Involvement of Senior Management

Senior Management demonstrates its involvements EHS issues through:

No.	TASK	ACTION BY	COMPAIANCE TARGET	VERIFICATION DOCUMENT
1.	Review Project EHS Performance and EHS plan implementation in consultation with PM & EHSO.	PM	Half yearly	MOM PM EHS Review Meeting
2.	Ensure adequate professional EHS support is available for effectively implementing the EHS plan, fulfilling EHS targets and attaining EHS objectives.	PM EHSM	Project Duration	No evidence of EHS discrepancies due to lack of resources
3.	Ensure sufficient support and resources and available to meet EHS targets (e.g. Infrastructure, vehicle, EHS steward, communication, PC etc.)	PM / SM	Project Duration	No evidence of EHS discrepancies due to lack of resources
4.	Impart necessary EHS training for the Staff & Workmen of the project.	PM / SM	As required	EHS Training record



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4.0 INTEGRATED MANAGEMENT SYSTEM

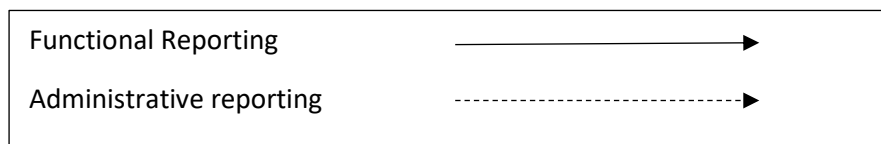
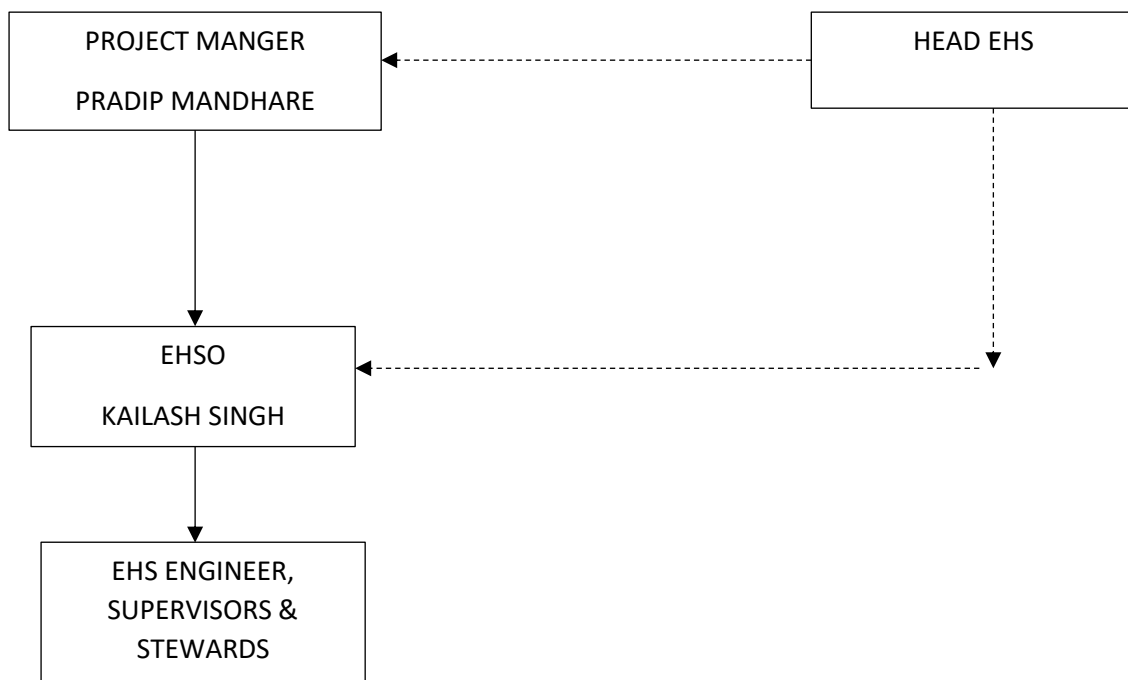
Parshuram Arawali Highways Pvt Ltd EHS Management system is established meeting the international standard ISO 9001 – 2008.

5.0 RESOURCES MANAGEMENT AND ORGANISATION CHART

EHSM decides the number of EHSO required to cater the EHS requirement of project in consultation with HOD EHS & PM

EHS steward deployment

EHS steward shall be engaged depending on area, criticality of the work carried and work force. Number of EHS steward may be increased depending upon the risk and work force.





6.0 RESPONSIBILITIES

6.1 EHS management is a line responsibility requiring active participation of all levels of management and supervision. Individual EHS roles and responsibilities, along with task and target shall be distributed to the individuals for action, as described below:

No.	TASK	TARGET	VERIFICATION DOCUMENT
1.	Responsible for completion of the project with total implementation of the company's requirement. EHS Management System & requirements of this plan and comply with the relevant legislations.	Project Duration	
2.	Ensure that all staff & workmen are competent to perform their tasks safety in compliance with EHS Management System and this plan requirement. He shall do so by ensuring: <ul style="list-style-type: none"> - Screening of workmen is effectively implemented by the time office & site execution engineers. - EHS Induction provided for all staff & workmen EHSO before deployment. - Regular monitoring and organise continuous in-house EHS trainings. - Establishing adequate control measures for the employees fitness in order to avoid fatigue, stress, extended working etc. 	Project Duration	Screening Record of workmen. EHS Induction for Workmen EHS Training Record
3.	Ensure sufficient resources are available at project. He shall ensure through: <ul style="list-style-type: none"> - Reviewing EHS Plan implementation and discuss any outstanding issues in Project EHS Committee Meeting. - Investigating non-compliance and non-implemented items. 	Project Duration	i) MOM Project EHS Committee. ii) EHS audits
4.	Project EHS Inspection and EHS Plan implementation monitoring	Project duration	Inspection Report
5.	Investigate all high potential incidents and non-compliance and ensure immediate remedial action to stop recurrence.	As & when required	Investigation Reports and action plans.

6.2 CEHSM

No.	TASK	TARGET	VERIFICATION DOCUMENT
1.	Supplement Project EHS inspections & relevant EHS training at the project in coordination with EHSO.	Once in Six Months	CEHSM Site Visit Report
2.	Investigate all serious incidents & recommend preventive action at project.	As and when required	Incident Investigation Report
3.	Monitor, all EHSO activities & co-ordinate with Clients, Project in charges, Service departmental heads.	As and when required	No documentary evidence
4.	Organise campaigns, competitions & other special emphasis programmes to promote EHS at workplace.	During January & as and when	Record of EHS campaign and competitions



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		required	
5.	Conduct EHS Audit and Inspection during the Project duration	As per schedule	Audit Report.

6.3 EHSO

No.	TASK	TARGET	VERIFICATION DOCUMENT
1.	Disseminate and Communicate, EHS Management System requirements to project personnel.	Project Duration	
2.	Provide necessary advice, information and support in the effective implementation of the of the EHS Management System requirement and this EHS plan.	Project Duration	
3.	Update the EHS plan to the requirement of the activities being carried out when there is a revision.	Project duration	EHS Plan
4.	Plan and conduct Internal EHS training programs, initiate drive to promote EHS awareness and performance	Project Duration	EHS Training Reocrd.
5.	Carry out EHS inspection of Work Area, P&M Equipment's & Machineries, etc. as per the IMS requirement.	As per Monthly Activity Plan	EHS Inspection Report, P&M Inspection Report
6.	Creating EHS awareness through Tool Box talks.	Every day	Tool box talk Report
7.	Advise and co-ordinate with line management in preparing EHS Risk Assessment for new activities.	Project Duration	EHS Risk Assessment Record.
8.	Conduct, Investigation of all incidents and recommend appropriate corrective measures.	When reported	Investigation Report
9.	Convene EHS Committee meeting & minute the proceedings for circulation & follow-up action.	Min Frequency – Once in a month.	MOM – Project EHS Committee Meetings
10.	Advise & co-ordinate for implementation of Work Permit Systems	Whenever work requiring WPS is executed	Completed Work Permit
11.	Plan procurement of PPE & Safety devices and inspect before use as per laid down norms.	Project Duration	Requirement & Release of Safety Materials, Delivery Challan Records.
12.	Report to CEHSM on all matters pertaining to status of EHS and promotional programme at project level.	Regular basis	
13.	Facilitate screening of workmen and conduct EHS induction.	Project Duration	Screening & induction Records.
14.	Monitor administration of First Aid	Project Duration	First Aid Register
15.	Conduct Fire Drill, Procure, inspect and arrange to	As scheduled	Fire Drill



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	maintain Fire Extinguishers.	in the monthly activity plan	Register, Fire extinguishers inspection register
16.	Organise campaigns, competitions & other special emphasis programmes to promote EHS in the work place.	As and when required	Record of EHS campaigns & Competitions
17.	Register Customer complaints and take corrective action.	Project Duration	Customer Complaint Register.
18.	Record, analyse and cascade lateral learning points from First Aid Cases Near Miss Cases & Accidents to all project personnel and analyse the trends & effectiveness.	Monthly	First Aid Register, Incident Investigation Report.
19	Maintain all EHS related documents Update EHS training records.	Continual	EHS related Documents

6.4 Section / Area In-charges

No.	TASK	TARGET	VERIFICATION DOCUMENT
1.	Ensure that all the workmen engaged under him are selected through the screening system & have undergone EHS Induction before assigning any task at site.	Project Duration	Screening & EHS induction records.
2.	Ensuring compliance of Parshuram Arawali Highways Pvt Ltd basic EHS rules and applicable specifications by <ul style="list-style-type: none"> - Taking prompt action of project inspection and hazard findings. - Closing all the points identified in inspection reports. - Ensure EHS Risk Assessment is done for all the jobs under him. 	Project duration	EHS Inspection report, EHS Risk Assessment record
3.	Ensure that all near miss cases / Reportable LTI / Dangerous Occurrences / Fatality are reported promptly.	As & when notified	Reports
4.	Participate regularly in EHS meetings.	As schedule	MOM

6.5 All Employees

No.	TASK	TARGET	VERIFICATION DOCUMENT
1.	Report all unsafe acts and condition to the immediate supervisor	Continuous	-
2.	Start work only when conditions are safe and stop work when it is unsafe.	Continuous	-



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3.	Operate equipment only when authorised and in prescribed manner (if applicable)	Continuous	Inspection Records.
4.	Report any incident immediately.	Continuous	Reports

6.6 Site Engineers

No.	TASK	TARGET	VERIFICATION DOCUMENT
1.	Understand the EHS requirements of the Project from this Plan, EHS Management System, EHS Manual & follow the same in execution of the work.	Continuous	No. of findings in the EHS Inspection
2.	Give Tool box talk to the workmen under him.	Daily	Tool Box Report
3.	Ensure the workmen under him wear the necessary personal protective equipment's relevant to the job.	Continuous	EHS Inspection Report
4.	Eliminating all unsafe conditions in the workplace	Continuous	EHS Inspection Report
5.	Keeping the workplace neat & clean	Continuous	EHS Inspection Report
6.	Know the critical activities of his job based on HES Risk Assessment and ensure implementation of the control measures.	Project Duration	EHS Risk Assessment & Safe work method.

7.	Participating with the EHSO or the committee Members in the Project EHS Inspection	As schedule per	EHS Inspection Report
8.	Follow all work permit system as per client requirements or Parshuram Arawali Highways Pvt Ltd's EHS Management System before starting of work.	As schedule per	Work Permit System
9.	Report all near miss cases / reportable LTI / dangerous occurrences / fatality to ESHO immediately verbally & submitting the preliminary incident report with 12 hours.	As schedule per	Preliminary Incident Report
10.	Inform the concerned authority as per the emergency response plan	As schedule per	Emergency Response Plan

6.7 Project EHS Committee Members

No.	TASK	TARGET	VERIFICATION DOCUMENT
1.	Attend meeting regularly as per schedule to discuss and decide the ways and means of eliminating the factors affecting EHS.	Minimum once in a month	MOM EHS Committee Meeting
2.	Analyse all the activities of the forthcoming period and identify the possible hazards and finalizing the precaution to be taken.	Minimum once in a month	MOM EHS Committee Meeting



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3.	Monitor the EHS Performance of the project and suggesting improvements whenever needed	Minimum once in a month	MOM EHS Committee Meeting
4.	Actively participate in the EHS Committee Inspections assess Key performance indicators on EHS.	As per Schedule	EHS Inspection Report. KPI on EHS report.

6.8 Sub-contractors

All Subcontractors / Vendors / Suppliers / Third Party performing services at the Project shall be subject to this plan requirement.

<i>No.</i>	<i>TASK</i>	<i>TARGET</i>	<i>VERIFICATION DOCUMENT</i>
1.	Understand the EHS code of practice for subcontractors and sign the same as a token of acceptance before starting the activity.	Before starting of the activity	EHS Code for Sub-Contractors
2.	Subcontractor, his Supervisor and his workmen shall adhere all the laid down EHS rules & regulations while working at site, follow the instructions / advice of Site Engineer & EHSO from time to time.	Continuous	Monthly Evaluation of Subcontractors



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7.0 PROJECT EHS COMMITTEE

Considering the wide spread work activities during the project execution apart from central safety committee four sub safety committees will be formed such that one in each package.

Central Safety Committee, functioning under the Chairmanship of the Project Manager, is constituted and it will meet once in a month.

CENTRAL SAFETY COMMITTEE

CHAIRMAN : Mr. PARDIP MANDHRE

MEMBERS :

- Mr. PRINCE TIWARI**
- Mr. AMAR RAHORA**
- Mr. NASIR AKHTAR**
- Mr. MANOJ KUMAR SINGH**
- Mr. CHINNABBA**
- Mr. KASHINATH V. PATIL**
- Mr. CHANDAN GHOSH**
- Mr. R.P. SINGH**
- Mr. SHUBASH**
- Mr. JIYAU HAQUE**

SECRETARY : Mr. KAILASH SINGH

Periodicity: Each safety committee will meet at least once in every month.

Agenda : Shall be circulated by the Secretary at least 48 hours before the meeting

Circulation: Gist of the meeting will be circulated to:

- Chairman
- Invitees
- Members
- CEHSM

Date: 05-04-2018

Signed by _____

CHAIRMAN



8.0 EHS RISK ASSESSMENT

EHS Risk assessments prepared as per the procedure manual.

9.0 LIST OF APPLICABLE LEGAL & OTHER REQUIREMENTS

Sl. No.	List of Applicable Legal and Other EHS Requirement
1	Building and other Construction Workers (Regulation of Employment and Conditions of Service) Act., 1996
2	Petroleum Act 1934 & Petroleum Rules 2002
3.	Motor Vehicle Act, 1988
4.	Explosives Act 1884 & Gas Cylinder Rules 2004
5.	Indian electricity Act 2003 & Rules 1956
6	Gas Cylinder Rules 2003
7.	Air (Prevention and Control of Pollution) Act, 1981
8.	Water (Prevention & control of Pollution) Act 1974, Rules 1975
9.	The Noise Pollution (Regulation and Control) Rules, 2000
10.	CPCB Regulations, : System & Procedure for Compliance with Noise limits for Diesel Generator Sets (Upto 1000 KVA) w.e.f. 15.01.2008
11	Batteries (Management and Handling) Rules. 2001
12	Environment Protection Act, 1986 and Rules 1986
13	Parshuram Arawali Highways Pvt Ltd EHS Manual
14	Contractual Requirements pertaining to EHS.

10.0 GENERAL EHS RULES AND REGULATIONS

- No workmen below 18 years and above 58 years of age shall be engaged on job.
- All workmen shall be screened before engaging them on the job. Physical fitness of the person to certain job like working at height or other dangerous locations to be ensured before engaging the person on work. The final decision rests with the site management to reject any person on the ground of physical fitness.
- Smoking is strictly prohibited at work place.
- Sub-Contractors shall ensure adequate supervision at workplace. They shall ensure that all persons working under them shall not create any hazard to self or to co-workers.



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- Nobody is allowed to work without wearing safety helmet & safety jacket. Chinstrap of safety helmet shall be always on.
- No one is allowed to work at or more than 2 m height without wearing safety harness and lanyard of harness shall be anchored to firm support preferably at shoulder level.
- No one is allowed to enter into workplace and work at site without adequate foot protection.
- Usage of eye protection shall be ensured when workmen are engaged for grinding, chipping, welding and gas cutting. For other jobs, as when EHSO insists eye protection shall be used.
- All PPE like shoes, helmet, safety harness etc. shall be arranged before starting the job as per recommendation of EHSO. PPE non-compliance may attract penalty.
- All excavated pits shall be barricaded and barricade to be maintained till the backfilling is done. Safe approach shall be ensured into every excavation.
- Adequate illumination at workplace shall be ensured before starting the job at night.
- All the dangerous moving parts of the portable / fixed machinery being used shall be adequately guarded.
- Ladders being used at site shall be adequately secured at bottom and top. Ladders shall not be used as work stands under suspended load.
- Horseplay is completely prohibited at workplace. Running at site is completely prohibited, except in case of emergency.
- Materials shall not be thrown from heights in any case.
- Other than the electricians with red helmet no one is allowed to carry out electrical connections, repairs on electrical equipment or other jobs related thereto.
- Power supply shall be taken through RCCB of 30 MA sensitivity.
- Insertion of bare wires for tapping power from electrical sockets is prohibited.
- All major, minor accidents and near misses to be reported to Site Engineer / EHSO to enable the management to take necessary steps to avoid recurrence.
- All scaffoldings / work platforms shall be strong enough to take the expected load. The width of the working platform and fall protection arrangements shall be maintained as per recommendation of EHSO.
- All tools and tackles shall be inspected for use. Defects to be reported immediately. No lifting tackle to be used unless it is certified by the concerned P&M Engineer / EHSO.
- Good housekeeping to be maintained. Passages shall not be blocked with materials. Materials like bricks shall not be stacked more than 1.5 height.
- Debris, scrap and other materials shall be cleared from the workplace time to time and at the time of closing of work every day. Scrap bins provided at site shall be used.
- Sub-contractors shall ensure that all their workmen are following safety practices while travelling in the company's transport and staying at company's accommodations.
- Adequate firefighting equipment shall be made available at workplace and persons are to be trained in firefighting techniques with the co-ordination of EHSO.
- All unsafe conditions, unsafe acts reported by site supervisors and EHS personnel shall be corrected on priority basis.
- No children shall be allowed to enter the workplace.
- Female workers are not allowed to work at height and other high risk areas.
- Other than the driver, nobody is allowed to travel in tractor / tipper / truck.



11.0 WORK PERMIT SYSTEM

The following own work permit procedures to be followed for all the work within the area allotted for construction.

Hot, work permit to be obtained for all hot works being carried out at the following area:

- In and around the area of about a distance of 50 mtrs. From the store area.
- Inside the hot mix plant and for about 50 mtrs. Distance from the area where bitumen / HSD / Furnace oil is being stored or handled.
- In and around the area of about 50 mtrs. From the petrol / diesel / storage points.
- In and around the area of about 50 mtrs. From carpentry section and wooden material storage yard.
- In and around the area of about 50 mtrs. From flammable debris / waste oil / wooden scaraps / saw dust/ office waste storage yard.

Excavation permit to be obtained for all the excavations being carried out at the project site where the depth is more than 2 mtrs. This primary helps to keep the information to EHS team in wide spread project site and to suggest the preventive measures before starting the activity and to monitor the excavated area. If excavation area is declared free from underground utilities by client, then we shall follow excavation work permit procedure otherwise shall obtain written clearance from the concerned authorities or follow the work permits of the authorities if they provide Permits for working on plant & Machinery & other power driven equipment to be followed for all the maintenance activities / cleaning activities of machine, mixer drums. In addition to the obtaining of work permit lock out and tag out procedure to follow.

LOTO procedure: Providing lock for the operating switch gear of machine under maintenance and providing tag on the operating switch gear of the machine under maintenance so that nobody else can start the machine which is under the maintenance.

Permit for blasting to be obtained before every blasting on every day at quarry area and at the project site. Details of quantity of explosives brought to site and quantity used and quantity returned also to be recorded in addition to the permit.

Whenever the persons are engaged to work at the heights more than 10 mtrs. Height the concerned engineer / site engineer has to raise the permit to work. This helps the EHS dept to know about the location of height works in the wide spread project and they can extend their monitoring accordingly and check the condition of working platforms and usage of PPE etc.

Sl No.	Description of the Critical Activity	Issuing Authority
01	Excavation (where UG utilities are anticipated)	Section in Charge (or) Site HES Officer in co-ordination with the concerned section heads of the UG services.
02	Working on Plant & Machinery & Other Power driven Equipment	P&M in Charge

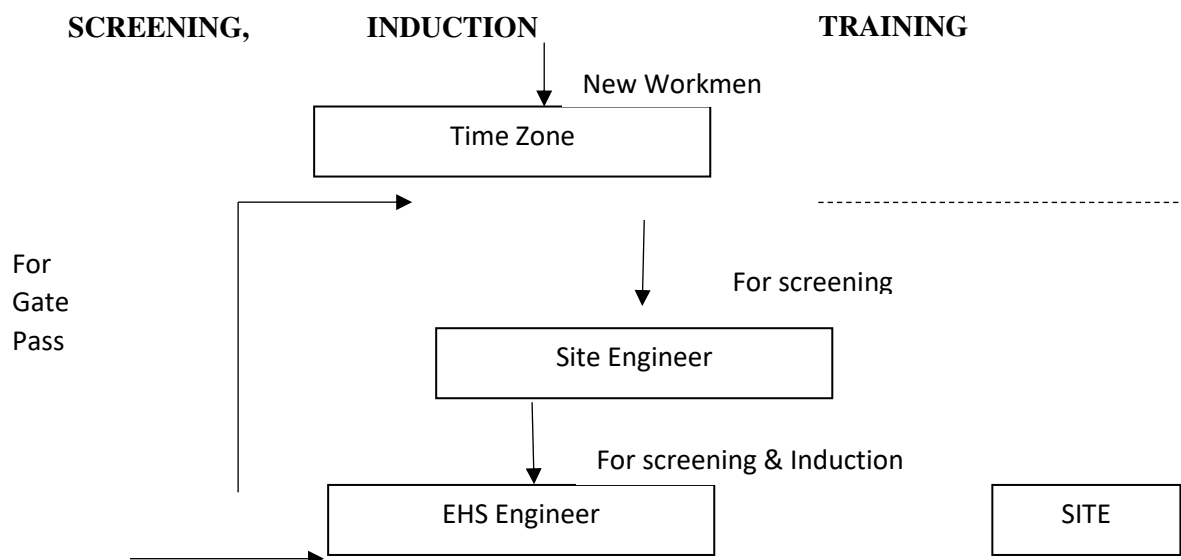
IMP: Whenever any permit is issued by site incharge information regarding the work and work location to be informed to the concerned EHS engineer so that he can extend the support.



All the work permits to be maintained with the concerned department or to be handed over to EHS department after completing the work.

12.0 SAFETY MANAGEMENT SYSTEM

12.1 The following Safety Management System shall be adopted in all job sites to achieve the objective Zero Accident.



Screening of workmen

Before deploying any workmen, his physical ability, competency qualification and work experience to carry out the required activity shall be verified by the site engineer & site EHS Engineer physically and only upon the satisfaction of them about the physical ability, level of knowledge and experience, his employment shall be considered thereon.

If required, on demand on the Safety Engineer, fitness certificate obtained from the approved medical practitioner should be produced on time of employment.

Prior to the appointment, every workman undergoes screening system to scrutinize his suitability to the work then he is engaged.

Safety Induction / Orientation for the workmen

Safety induction room will be provided at the site for facilitating safely induction for all new workmen entering to the site. In this program, safety engineer shall present the safety induction module apart from the other safety inputs.

The safety induction module is available with Project EHS Manager / SEHSOs . It consists of

General Rules and regulations of the site



Responsibilities of construction site personnel

Safety expectations from the worker

First Aid Facilities state where first aid facilities are located and how first aid facilities are to be utilized.

Accident Reporting

Hazards and Risk involved in his activities

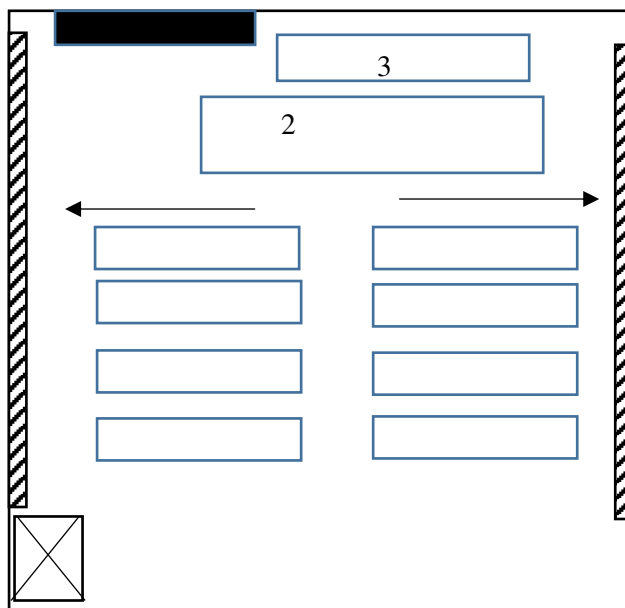
How to overcome the hazards at site

Various PPE available in the site

Importance of PPE

Safety Induction room cum training hall: A spacious hall to conduct safety induction and different training programmes for workmen. Safety Induction room shall have the required training aids such as Personal Computer (with Safety induction Modules) Study charts, samples of PPEs and furniture etc.

SAFETY INDUCTION ROOM



Legends:

1. Display of PPE
2. Table with projector & Computer
3. White board
4. Furniture
5. Display of posters/EHS informative materials.

Safety Training

Project EHS Manager in co-ordination with Head EHS will conduct safety training programs on different topics. Site engineers, supervisors attend the program to enhance their technical knowledge with respect to safety and learn how to integrate safety into the work practices.

“Safety in Construction” – This is the programme conducted by HQ EHS dept. Site staff members has to be nominated for this programme. This the comprehensive programme of two days duration will organized as per the Training calendar.

List of Training programme conducted at project site.

For Staff Members:



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In addition to the above two days training programme for two days programmes of short duration (about one to one and half hour) will be arranged at construction sites on these following topics.

1. Reverse The Risk & EHS Golden Roles
2. Principles of accident prevention and safety management
3. Safety during excavation activity
4. Safety during blasting and other quarrying activities.
5. Scaffolding safety
6. Safety while working at height
7. Awareness programme on work permits
8. Traffic Management during road construction activities
9. Safety during welding and gas cutting operations
10. Electrical safety
11. Safety with P&M operations
12. Safe Material handling practices
13. First Aid
14. Fire prevention and control
15. Environmental protection measures at construction sites
16. Occupational injuries and deceases – preventive measures

For supervisors and charge-hands & S/C supervisors

1. EHS Golden Rules
2. Safety plan briefing programme
3. Safe material handling practices
4. Traffic Management at road works
5. Excavation safety
6. Safety while working with road construction machinery
7. Safe practices while working in Plant area
8. Safe blasting operation
9. Safety while working at height
10. Defensive driving and road safety
11. Basic electrical safety
12. Fire drill and fire prevention
13. Environmental prevention measures at construction site
14. First Ait
15. Safety during welding and gas cutting operations.

For Workmen

1. Awareness programme on EHS golden rules and regulations at construction site
2. Demonstration of safe handling of form work components
3. Good housekeeping practices
4. Safety during welding
5. Safety during gas cutting
6. Safe material handling practices
7. Safety during working on live roads.



8. Safety with hand tools & Inspection of hand tools
9. Basic electrical Safety
10. Safety during travelling inside and outside the site
11. Safety while working with concreting machinery
12. Safety during manual concreting.
13. Safety while working at plant area
14. Safety while using portable power tools
15. Defensive driving
16. Safety while working at reinforcement yards
17. Safety while working near excavation machinery
18. Safety while working with road construction machinery
19. Fire fighting
20. To maintain safe environment at work place and labour colony
21. Best practices to maintain good health.

EHS Engineer shall prepare quarterly training calendar mentioning scheduled topic, proposed date and month and he will coordinate to conduct the training accordingly. The concerned in charges and the engineers shall also join with the safety engineers in training the workmen.

Minimum of one training programme for staff and one training programme for supervisors and four training programmes for workmen will be conducted in a month and the detailed of training programmes conducted will be maintained by EHSO.

List of the trainers to be prepared in consultation with the site staff and it is to be displayed in safety induction room and to be updated as required.

Pep Talks / Tool Box Talk

In order to enhance the safety awareness amongst workmen, site engineer conducts pep talks regularly. He organizes the meeting with the help of Site Engineers. He explains the safety precautions to be followed craft wise. A pep talk matrix shall be prepared in the beginning of every month. The plan shall have a broad spectrum of attack. Workmen of same trade shall be trained individually.

12.2 CONTINGENCY PLAN FOR EMERGENCY SITUATION

Contingency response plan:

A detailed document containing the sequence of action to be performed in case of emergency. The document contains the emergency contact no of various concerns, so that no miscommunication or communication gap arises during emergency. For each area of work / project plant area a separate contingency plan to be prepared with the key members of that particular area.

Emergency response plan shall be prepared to deal with the various situations such as:

- Natural destructive forces
- Epidemic outbreaks
- Collapse of wall
- Outbreak of fire
- Accidents



- Dangerous Occurrences

Emergency assembly points is identified in front of EHS office near CPO at emergency assembly point various conditions, which may arise during the emergency such as but limited to sagging of electrical wires, collapse of structure easy access and exit for relief activities, shall be considered. Emergency response plan may also consist the details of required utilities such as Emergency Vehicle, First Aid Boxes, Shelters and their locations others. The emergency response plan will be circulated and communicated to all concerned.

12.3 PERSONNEL PROTECTIVE EQUIPMENT:

Safety / Personnel Protective Equipment (PPE's) does not stop accident, but it can help to lessen their effects. Employers have a duty to eliminate the hazard and or control the risk, so far as is reasonably practicable. PPE therefore represents a last line of defence for the individual.

Adequate no. of safety equipment's and Personnel Protective Equipments's shall be planned and procured by safety Engineer, with considering sufficient process time and buffer stock depending upon the conditions. On receiving the safety and personnel protective equipment safety engineer will inspect the materials for the quality and only approved materials to be taken for use at the project site.

COLOUR CODE OF SAFETY HELMET TO BE FOLLOWED AT SITE:

WHITE	-	Staff & Visitors
BLUE	-	Supervisors & Sub – Contractors
GREEN	-	Safety Steward
RED	-	Electrician
YELLOW	-	All workmen

There are many types PPE for helmets to footwear, each type designed to protect different parts of the body against specific hazards. This chapter explains some of the common types of PPE.

SAFETY EQUIPMENT (PPE) REQUIREMENT FOR GENERAL ACTIVITIES

ACTIVITY	CATEGORY	PPE RECOMMENDED
Surveying works	Surveyors, Asst. Surveyors, Helpers	<ul style="list-style-type: none">• Safety Helmet• Safety shoe (Gumboots in rainy / slushy conditions)• Reflective jackets• Safety Cones
Tree Cutting	All workmen	<ul style="list-style-type: none">• Safety helmet• Shoe• Reflective jacket• Safety Cones
Soil dumping, spreading, watering GSB spreading	All workmen	<ul style="list-style-type: none">• Safety helmet• Shoe• Reflective jacket



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		<ul style="list-style-type: none"> • Safety Cones
Excavation	All workmen	<ul style="list-style-type: none"> • Safety helmet • Shoe (Gum Boots in slushy condition) • Reflective jacket
Hot works like laying of DBM BC and handling of hot asphalt	All workmen	<ul style="list-style-type: none"> • Safety Helmet • Safety shoes with nitrile sole • Reflective jacket • Rubber / Cotton hand gloves
Welding & Gas Cutting	Welders & Gas Cutters	<ul style="list-style-type: none"> • Safety Helmet • Safety shoes • Leather Gloves, leg / arm guards • Face Shield / Eye protection wit & eye shield with suitable shade.
Breaking of boulders, handling of Boulders	All workmen	<ul style="list-style-type: none"> • Safety helmet • Safety Shoe • Goggles (clear)
Shutter making (carpentry work at work shop)	Carpenters and wood workers	<ul style="list-style-type: none"> • Safety helmet • Shoe • Face shield • Nose mask
Shutter fixing and deshuttering (carpentry works at site)	Carpenters, Kalasis and helpers	<ul style="list-style-type: none"> • Safety helmet • Shoe • Safety harness (when working at or above 2 meters height)
Reinforcement cutting and bending works (at rebar yard)	All rebar yard workmen	<ul style="list-style-type: none"> • Safety helmet • Shoe • Cotton had gloves • Eye protection (during manual cutting) • Shoulder Pad
Concreting & curing	All workmen	<ul style="list-style-type: none"> • Safety helmet • Shoe & gum boots for those who are likely to move in cement & concrete. • Safety Goggles
Erection works	Riggers, Khalasis, Helper	<ul style="list-style-type: none"> • Safety helmet • Safety Shoe • Safety harness (when working at or above 2 mtrs height) • Cotton / leather hand gloves (while handling wire rope slings and rough objects)
Rock drilling	Rock Drillers	<ul style="list-style-type: none"> • Safety helmet • Safety jacket • Safety shoes • Nose Mask • Ear protection • Safety Goggles
DG Operators & other	Operators	<ul style="list-style-type: none"> • Safety helmet



Noise prone areas		<ul style="list-style-type: none">• Safety shoe• Ear Muff
Electrical Maintenance & Repairs	Electricians	<ul style="list-style-type: none">• Safety helmet• Safety shoes• HV Rubber hand gloves

12.4 Health & Environment

Anticipated Health Hazards in the project

Arc – Eye

Fume fever

Skin irritation due to chemicals

Sun stroke

Precautions for Arc-Eyes

Every individual involved welding works shall be provided with spectacles to protect from UV rays.

Precaution for Fume Fever

Proper (2000 cu. ft. / hr / capita) ventilation shall be provided at the workplace.

Whenever natural ventilation is not possible, welding hoods and exhaust ventilations shall be used.

Precautions for Skin irritation

MSDS of the chemical being handled shall be studied thoroughly and precautions mentioned in the MSDS shall be followed strictly.

As a general precautions,

Contact of any chemical with skin shall be eliminated.

Hand gloves, Acid & Alkali proof shall be provided for workmen concerned with the activity.

Dinning Shelter

Dinning shed shall be provided for the workers at plant areas and the work locations whenever they are working.

Portable shelters may be provided for this propose.

Drinking water

Drinking water shall be provided in the site and the quantity of drinking water shall be 8 liters (including drinking and washing) for workmen.

Source of drinking water shall be selected properly to check any potential contaminants. Preferably underground water shall be used. In case water being procured from external agencies, the received water shall be checked for contaminations and chlorine content.

Chlorine content shall be 0.5 PPM (Parts per Millions)



Urinals and sanitary facilities

Urinals and sanitary facilities shall be provided at convenient place at plant area and in the sites where in site the facilities shall be neatly maintained.

Water shall be provided adequately for this purpose.

Bleaching powder or similar disinfected material shall be provided to keep the site hygienic.

Garbage's

Wastes produced from the site shall be properly collected and disposed of, to facilitate this process garbage's shall provide at convenient location of the sites and this garbage shall be maintained neatly.

Clearing shall be made for the Garbage's and dustbins of various types shall be provided to collect the various types of wastes separately.

Health Inspection

The following locations shall be inspected for Hygienic and Cleanliness aspects

Work area

Labour Colony

Canteen

Drinking water locations

Sanitary facilities

An inspection schedule shall be prepared and the same shall be maintained.

BASIC FIRST AID

First aid is an immediate and temporary care given to the victim of an accident or in case of sudden illness until the services of the doctor can be obtained.

- Site should have sufficient number of Trained First Aiders.
- First Aid centre shall be preferably situated in the Time Office.
- The location of the First Aid Centre shall be communicated down the line to all the workmen.

It is thus important for the first aiders to know what to do and what not to do. Improper and careless movement of the victim should be avoided since it increases severity. Everyone must know the procedure for obtaining medical aid or for summoning a doctor and ambulance. At all time, the position of the nearest telephone and the nearest first aid box must be known. No unqualified persons should attempt to render first aid except to try to save a life in extreme emergency when:

- (a) Breathing has stopped
- (b) Bleeding is severe

In construction work the following two cases require great speed:

- 1) Severe bleeding and
- 2) Suspension of breathing required artificial respiration.



SEVERE BLEEDING: Any wound which is bleeding profusely, especially in the wrist, hand or fingers must be considered serious and must receive professional attention. As an immediate first aid measure, pressure on the wound itself is the best means of stopping and avoiding infection.

Always in case of severe bleeding

- (a) Make the patient lie down and rest
- (b) If possible, raise the injured part above the level of body.
- (c) Apply pressure to the wound
- (d) Summon assistance

In case of electrical shock, drowning, gas poisoning, suffocation, etc.; where breathing has stopped, immediate action is necessary. Artificial respiration should be given using a resuscitator. However mouth-to-mouth respiration should be started without any time loss. Artificial respiration should be continued till the victim starts breathing or he is brought to the doctor.

In case of visible fracture and even a suspected fracture, the adjacent joints should be immobilized. If the fracture is accompanied by bleeding, it should be controlled as said earlier. While caring the victim, care should be taken not to disturb the fractured bone.

If assistance is close at hand, send for medical aid then carry on with emergency treatment. If you are alone, proceed with the treatment at once. Switch off current, if this can be done without undue delay. Otherwise, remove victim from contact with the live conductor, using dry non-conducting materials such as a wooden bar, rope, a scarf, any dry article of clothing belt, rolled-up newspaper, non-metallic hose, PVC tubing. Avoid direct contact with the victim. Wrap your hands in dry material if rubber gloves are not available.

A person receiving an electric shock may also sustain burns when the current passes through his body. Do not waste time by applying first aid to the burns until breathing has been restored and the patient can breathe normally unaided.

Burns are very painful. If a large area of the body is burnt, give no treatment, except to exclude the air, i.e. by covering with water, clean paper, or a clean shirt. This relieves the pain. If a burn has been caused chemically, i.e. by an acid or an alkali, the chemical must be washed with clean water.

The kit should be as near to the site as possible. The contents should be replenished as and when required, as enlisted below.

- Roller bandage
- Cotton Roll
- One bottle iodine
- 1 roll of adhesive plaster
- Eye drops
- One Burnol ointment
- One anti septic ointment (as recommended by physician).
- One tin of antiseptic powder as recommended by physician)
- 1 pair scissors
- One tourniquet (rope of 1 mtr. Length of 3 mm or 4 mm dia)



12.5 TRAFFIC MANAGEMENT PLAN

OBJECTIVES

Warn the road user clearly and sufficiently in advance.

Provide safe and clearly marked lanes for guiding users.

Provide safe and clearly marked buffer and work zones.

Provide adequate measures that control driver behaviour through construction zones

Traffic management plan gives the detailed guideline for traffic management in most of the common situations at our Road works. Traffic Control Plan is prepared based on his general guideline and applying the following variables, which may vary from project to project. The variables are.

Average Vehicular Traffic Density in peak and non-peak hours.

Maximum width of lane required for construction during various activities.

Number and types of junctions in the road.

Availability of standard footpath and its location and dimensions.

Change in the lane width if any and its locations.

Regulatory and advisory speed limits etc

12.5.1. Components of road construction zone:

Traffic control zone shall be divided into three components,

- a) Advance Warning Zone
- b) Transition Zone
- c) Working Zone

Advance warning Zone:

The “Advance warning Zone” shall provide and inform the road users about the,

Presence of the hazard through Suitable sign with distance to the hazard.

Changes affecting traffic arrangements such as a reduction in the number of lanes and/or in the speed limit within the traffic control zone.

Extend and type of hazard.



Transition Zone:

Approach Transition Zone shall, Guide the traffic into the altered traffic flow pattern around the working zone.

Reduce the approach speed of the vehicle and channelize them into the narrower and/or restricted number of lanes or a temporary carriage.

Working Zone:

Working Zone shall, have adequate lateral and longitudinal buffer zones. Delineate to avoid vehicle intrusion in the work area.

Terminal Transition Zone:

The terminal transition shall, have sufficient space to allow traffic into normal lanes. Extend from the downstream end of the work area and have the sign to indicate the end of the works.

Longitudinal buffer Zone:

This zone shall have adequate space between the end of the lead-in taper of the cones (T) and the working space to avoid intrusion to traffic into the working zone.

Lateral buffer Zone

This zone shall have sufficient width between the working space and the moving traffic.

Safety Zone

Safety zone shall consist of Approach Transition Zone, Terminal transition Zone, Longitudinal Buffer Zone & Lateral Buffer Zone

Protect workmen from the traffic and to protect the traffic from them. Not have materials and equipment's Allow workmen only to enter the zone to maintain cones and other road signs.

12.5.2 TRAFFIC CONTROL DEVICES

Traffic control devices shall

Be capable of being understood easily and convey only one meaning.

Be within the cone of vision of the driver and be placed such that it allows adequate response time at the average speed.

Be able to resist the local wind pressure, rain and vibrations but not be a rigid obstacle in the event of collision.

Be installed for the minimum required time and be removed immediately to avoid hindrance to traffic.

Be serviced and maintain regularly.

The primary traffic control devices shall be placed in road Construction as per the requirement.



- | | | |
|----|----------------------|----------------|
| A. | Road sign | B. Delineators |
| C. | Barricades | D. Cones |
| E. | Flashing lights etc. | |

ROAD SIGNS:

Classification:

Road signs classified into the following three major categories shall be provided in the road construction zone:

Mandatory / regulatory Signs

Caution / Warning Signs

Informatory Signs

Apart from the above three major categories, a special category named “work Zone Sign” shall also be provided to guide traffic through highway construction / maintenance zones.

Requirement of road signs:

Road Signs shall,

Be well located so that its message is clearly visible

Be retro reflective of high intensity grade or engineering grade

Mandatory / Regulatory Signs.

Mandatory Sign shall impose legal restriction of traffic and violation of these signs shall be an offence.

Include all signs, which give notice of special obligations, prohibitions or restrictions with which the road users must comply. Be mostly circular in shape.

Caution / Warning Signs

Cautionary Signs shall be used to warn road users of the existence of certain hazardous conditions either on or adjacent to the roadways, so that they are cautious and take the desired action.

Be triangular with red border and black symbol or message on white background.

Informatory Signs

Informatory Signs shall be used to guide road users along routes, inform them about destination and distance, identify points of geographical and historical interest.

Provide other information that will make the road travel easier, safe and pleasant.

Be usually rectangular in shape

Be further sub classified into

Direction and place identifications Signs

Facility Information Signs

Other Useful Information Signs

Parking Signs

Flood Gauge






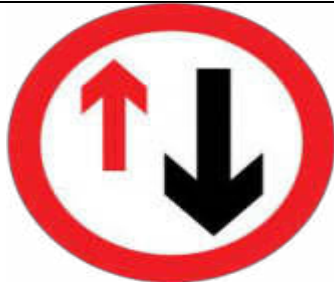


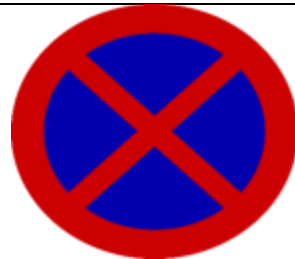

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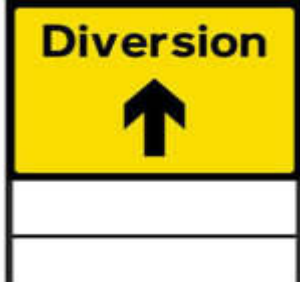





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MINIMUM SIGHTLINE DISTANCE AND THE MINIMUM SIZE OF THE SIGNS









Average Speed (Km/h)	Distance of first sign in advance of the first channelizing device (m)	Size of warning Sign	Minimum no. of signs in advance of the hazard
Under 50	100	600	3
51 – 60	100 – 300	750	3
61 – 80	120 – 300	900	3 or 4
81 – 100	300 – 500	1200	4
Over 100	1000	1200 to 1500	4





The sign shall be located at the entry to the on-way street due to detour or traffic diversion plan		The signs shall be located at road section where the vehicles are not allowed to enter on account of work zone traffic management plant	
This sign will be where a side road forms a T-Junction with a two way road and traffic is required to turn in one direction due to road works		This sign will be where a side road forms a T-Junction with a two way road and traffic is required to turn in one direction due to road works	
The sign shall be erected to prohibit overtaking in approach warning zone. It can be placed both sides and can be repeated for emphasis.		The sign shall be used to indicate that drivers must give way to oncoming vehicle. If necessary a definition plate can be installed below the sign written 'Give way to oncoming vehicles' Definition plate can be written either in English or Hindi or in Regional language as appropriate.	










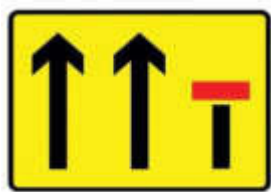
The sign shall be erected to prohibit parking on account of road works		The Sign shall be erected to prohibit parking, waiting and standing on account of road works.	
The "No Parking" sign is used on the roads to prevent any parking of vehicles on the main carriageway which will lead to congestion.		This sign shall be erected where entry is prohibited for vehicle whose axle load exceed a particular limit in a temporary road or a structure for construction.	

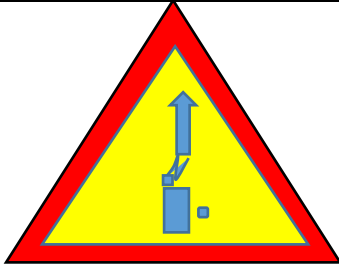

The sign shall be erected in advance of an overhead structure where entry height has been restricted due to road works.		The sign shall be erected where entry of vehicles exceeding a particular length is prohibited on account of construction activities.	
The sign shall be erected where entry is prohibited for vehicles whose loaden weight exceeds the indicated limit as the temporal road structure can not afford the weight beyond that indicated		The sign shall be located in advance warning zone to prescribe the speed limit and warrants reduction in the speed on approaches. It can be repeated with a lowerer value at the start of taper and also in the diverted pathway.	
The sign to indicate the diversion that are lawfully to be taken on account of work zone management plan the traffic to move in the Ahead direction		The sign to indicate the diversion that are lawfully to be taken on account of work zone management plan and traffic to move ahead and right direction.	
The sign to indicate the diversion that are lawfully to be taken on account of work zone management plan and traffic left direction.		The sign to indicate the diversion that are lawfully to be taken and direction of movement with respect to the position of sign installed and traffic to move in left direction	
The signs indicate the diversions that are lawfully be taken and direction of movement with respect to the		The diversions that are lawfully be taken in advance approximately 50 m ahead due to temporary traffic management plan	







position of sign installed and traffic to move in right direction.			
The sign is for the diversion that are lawfully be taken in advance approximately 50 m ahead due to temporary traffic management plan		The sign shows keep left of sign placed due to road works traffic diversion.	

Sign to indicate change of direction to left in a work zone		Sign to indicate change of direction to right in a work zone	
Sign in case of a reverse bend where first is right turn in a work zone		Sign in case of a reverse bend. Where first bend is a left turn in a work zone.	
Sign to indicate a traffic control in an alternate one way movement ahead through a portal signal.		Sign to traffic from left is merging as part of temporary traffic management plan.	
Sign to traffic from right is merging as part of temporary traffic management plan		Sign to indicate road suddenly narrows due to road construction	

Sign to indicate to pavement which widens ahead in a temporary control zone		Sign to indicate narrow bridge ahead where the width of carriageway is less than the normal width of carriageway in work area.	
Sign to indicate to steep ascent more than 10% in a traffic control zone.		Sign to indicate to steep descent more than 10% in a traffic control zone	

Sign to indicate that left traffic lane tapers due to construction work		Sign to indicate that right traffic lane tapers due to construction work	
Sign to indicate road becomes dual carriageway in a work zone		Sign to indicate road becomes undivided carriageway in a work zone.	
Sign to warn that pedestrians are crossing in work zone		Sign to warn that school in work zone area	
Sign to warn that two way movement is ahead as part of WTMP.		Sign to warn that one (right) lane closure out of two lanes	
Sign to warn that one (right most) lane closure out of three lanes.		Sign to warn that one (right most) lane closure out of four lanes	

Sign to warn that traffic has to be shifted to other carriageway due to WTMP.		Sign should be displayed when men or machines are working on the road or adjacent to it. The sign with supplementary plate "END" shall be provided at the leaving side of the work zone where traffic revert back to normal flow.	
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Sign to indicate the road works progress ahead and sign is installed in the advance warning area		Sign to indicate the temporary traffic diversion and can be installed in the advance warning area.	
Sign to indicate slow traffic ahead due to road works and can be installed in advance warning area.		Sign to inform of one lane road due to traffic control and can be installed at advance warning area.	
Sign to inform the closure of road at 500 m ahead.		Sign to inform the Detour of traffic at 300 m ahead.	



GENERAL

Delineators

Delineators are devices or treatment which outlines the roadway or portion thereof.

They include Safety Cones, Traffic Cylinders, Tapes, Drums, painted lines, Raised Pavement Markers, Guide Posts, and Post-Mounted Reflectors etc.

They are used in or adjacent to the roadway to control the flow of traffic.

Delineators are basically driving aids and should not be regarded as a substitute for warning signs or barriers for out-of-control vehicles.

GUIDE POST

They are intended to delineate the edges of the midway so as to guide driven about the alignment ahead, particularly where it might be confusing.

Guideposts can be of metal, concrete, cut stone, timer or plastic

The posts can be made of Circular, Rectangular or Triangular Cross section but the side facing traffic should be at least 10 cm wide.

DRUMS

Drums of height 800 mm to 1000 mm high and 300mm in diameter can be used as either channelizing or warning devices.

Both plastic and metallic drums (e.g. Bitumen drums) can be used for this purpose.

Drums need to be filled up with earth or sand to increase its stability.

Drums should be reflectors and painted as shown in the figure.



SAFETY CONES

Safety Cones shall

Be 500mm, 750mm or 1000 mm in high and 300mm to 500mm in diameter

Be made of plastic, rubber, HDPE or PVC

Be reflectorized with red and white bands

Be anchored or loaded so that they are not displaced.

BARRICADES:

Barricades shall provide containment without significant deflection or deformation under impact and to redirect errant vehicles along the barrier.

Barricades can be used to, prevent traffic from entering work areas, such as excavation, materials storage area.

Provides protection to workers. Separate two-way traffic

Protect construction such as false work for culverts and other exposed objects.

Barricades can be permanent or portable. Portable barricades should be stable under adverse weather conditions and appear substantial but no such as to cause excessive damage if a vehicle strikes.

Three types of typical barricades generally used in road construction zones, with recommended dimensions are given below:

Table No. BARRICADE CHARACTERISTICS

Type / Components	Type – 1	Type – II	Type - III
Width of rail	200 – 300 mm	200 – 300 mm	200 – 300 mm
Length of Rail	2 m – 2.5 m	2 m – 1.2 m	2 m – 1.5 m
Width of strip	200 m	200 m	200 m
Types of Frame	Heavy “A” Frames	Light “A” Frames	Fixed, Demountable
Flexibility	Essentially movable	Portable	Essentially Permanent



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Type I and Type II Barricades

These barricades shall be used when traffic is redirected in road. These barricades can be used interchangeably and more suitable for repair, maintenance and other temporary works. As these barricades are susceptible to overturning in wind, their stability can be improved through ballast.

Type III Barricade

This is a permanent type barricade and can be erected at the point of closure when a road section is closed to traffic for construction works. They may extend completely across a road way and its shoulders or from kerb to kerb with a small gate or movable section for the entry of construction workmen and vehicle.



FLAGMEN

Control of traffic through work area in a road construction zone shall be done by flagmen where ever found necessary. Flagmen should be equipped with hand signal devices such as flags and sign paddles. The flag and paddle shall conform to the following specifications given below:

- | | | |
|------------------|---|--|
| Red Flat | - | Minimum size 600x 600mm (Polyester cloth advisable)
Securely fastened to a staff of length approx. 1 m |
| STOP Sign Paddle | - | Shape - Octagonal
Width – 600mm with rigid handle
Background Colour – Red, Letter Colour – White.
Border Colour – Black |

Flagmen need to maintain the flow of traffic continuous past a work zone at relatively reduced speeds by suitably regulating the traffic. He shall stop the traffic for a while whenever required (e.g. for entry and exit of construction equipment in to work zone)

Flagman should be positioned in a place where he is clearly visible to approaching traffic and at a sufficient distance to enable the drivers to respond for his flagging instructions. A flagman never leaves his post until properly relieved.

The standard distance shall be maintained at 60 -100 m but can be altered depending upon the approach speed and site conditions. In urban areas this distance shall be taken as 20m to 50m.

Standard Signals to be given by Flag men are depicted in the Figure. They should undergo special task training program through safety department.



12.5.3 TRAFFIC MANAGEMENT PRACTICES

Safety zone:

The zone that is provided to protect workmen from the traffic and to protect from them.

Approach Transition Zone

This is the length between the end of the lead in taper of cones (T) and the working space. It will vary with the speed limit as given in table (Traffic Control zone).

Lateral buffer zone

This is the width between the working space and moving traffic. It will vary with the speed given in table (traffic control zone). The lateral buffer zone safety clearance is measured from the outside edge of the working space to the bottom of conical section of the side nearest to the traffic.

SPECIFIC SITE CONDITIONS

Width of the existing carriage way varies (i.e. 10 Mtrs. & 7 Mts)

Width of the existing soft shoulders is one meter on each side on the carriage way.

Requirements to be followed when the notified speed restriction on the existing carriage way is 40 KMPH

Min. longitudinal buffer zone : 5 mtrs

Min lateral buffer zone : 0.5 Mts.

Min Length of advance warning zone : 100 Mts.

Speed restriction board indicating 40 KMPH to be arranged for a distance of one kilometre advance and after the working zone and along the working zone at an interval of 500 Mtrs.

i) TRAFFIC MANAGEMENT PLAN FOR ECCENTRIC WIDENING

In case shows the typical traffic management plan for the eccentric widening section, where we need to divert the existing

This case shows the typical traffic management plan for the eccentric widening section, where we need to divert the existing road traffic from existing road to newly construction road on LHS or RHS side of the existing road. First we will be completing the construction work of New Carriage Way as per approved design and drawing on either side of the ECW up to DBM layer then we allow traffic on NCW and take up the work for Existing Carriage Way (Work Area), for the safety of the road users we will be providing 3 types of safety board at both end of the diversion as explained below; which will be dividing the traffic movement from the work area in safe manner.

- i. 30 km/h Speed Limit & No overtaking Board – Approx. 60 mtr. Before the diversion start point.
- ii. Road Works Ahead – Approx. 120 mtr before the diversion start point
- iii. Men at Work board – Approx. 180 mtr before the diversion start point

In addition to this we will also provide safety barricading throughout the diversion for the safety of playing traffic. The typical TMP-1 for eccentric widening section is as shown below:



II. CO-CENTRIC WIDENING (NO SHIFT IN CENTER LANE OF THE ROAD)

Width of the existing carriage way in major part of the stretch is about 10 mtrs. In that case initial work zone inclusive of lateral buffer zone for the width of 3 mtrs. To be earmarked and barricaded on left hand side of existing carriage way.

Remaining width of 7 mtrs. To be left for the existing road traffic. Diversion boards, and delineators to be arranged as shown in figure of TMP 3 depending up on the working zone.

Wherever the width of the existing carriage way is only 7 mtrs. Traffic to be allowed to ply on the existing and widening to be done on one side to the required width by providing the barricades / reflectorized delineators to separate the working zone and the existing carriage way.

Utilising the existing working zone carriage way to be developed for the width of 7 mtrs. On right hand side from the proposed median.

Existing regular traffic to be diverted on to the developed right hand side carriage way and the road construction activities to be carried out on the left hand side of the proposed median.

Diversions may be changed to divert the regular traffic on either side of the divided carriage way till completion of all activities like DBM laying, asphalt laying, kerb casting and road marking etc. Diversion arrangements to be made with reference to the direction of diversion as shown in figure _____ and figure _____.

The construction zone in rural / urban section shall be barricaded either by reflectorized painted with red & white fixing on wooden / metal posts depends upon the intensity of traffic and persons movement in that area. This barricading shall be of minimum at 3m intervals so that to restrict the entering any vehicles in excavated or low level area.

Excavations more than depth of 1.5mtrs. on the side of road to be provided with hard barricading without any gap by leaving a distance of 1.5 mtrs from the edge of the excavation.

During the construction operation in outside of the urban section barricading shall be done using the GI sheets painted with red & white strips.

This barricading shall be of 15m intervals to maintain the continuity of the barriers delineators / white empty bags filled with sand shall be channelled between individual barricade components.

Flagman to be deployed for controlling traffic at the junctions and the locations where the traffic density is more.

Construction equipment, vehicles shall be ensured fit by pre-deployment inspection.



III) TRAFFIC MANAGEMENT FOR ONE SIDE WIDENING OF THE EXISTING CARRIAGE WAY I.E. CONSTRUCTION OF THE CARRIAGE WAY ON THE OTHER SIDE OF PROPOSED MEDIAN LEAVING THE EXISTING CARRIAGE WAY FOR REGULAR TRAFFIC.

Speed restriction boards to be arranged for a distance of one kilometre advance and after the working zone and along the working zone at an interval of 500 mtrs.

Traffic to be allowed to ply on the existing carriage way and the area at the proposed median to be developed.

Approach way for the construction vehicles and machinery to be developed to the proposed widening area from the existing carriage way.

Caution boards / Delineators to be provided on the existing carriage ways shown in TMP ____ and TMP ____ to prevent the regular traffic to enter in to the working zone.

Visibility to be ensured and any physical obstructions to be cleared at the area where the existing carriageway and construction approach way is joining. Either the construction vehicles or public vehicles are not to be allowed to park at these areas.

Flagmen to be deployed at the area where the construction vehicles are entering on to the existing carriage way.

After laying of DBM to the width of two lanes on one side on the median diversions may be changed to divert the regular traffic on either side of the divided carriage way till completion of all activities like laying of asphalt, kerb casting and road marking, crash barrier fixing, sign boards fixing etc. Diversion arrangements to be made with reference to the direction of diversion as show in TMP _____.

No persons are allowed to come out of the safety zone.

Movement of construction vehicles and machinery to working zone to be allowed only from the designated entry and exit points.

After completing GSB and DBM laying work zone to be shifted to the existing carriage way to take up the rectification and relaying work.

IV) TRAFFIC MANAGEMENT WHILE WORKING ON ONE SIDE OF DIVIDED FOUR LANED CARRIAGE WAY (WORKS I.E. ASPHALT LAYING, ROAD MARKING, KERB CASTING, SIGN BAORDS FIXING ETC.)

Once after developing the lanes on both sides of the median and after completing the DBM laying, road is ready for the traffic to ply under restricted speed limit.



Remaining works on the both sides of the divided carriage way to be taken up by diverting the traffic on the either side or work can be carried out by making the diversion arrangements as per the layout given in TMP_____.

The traffic would continue to ply in both directions on one side of the median i.e. Double lane road.

Approach to be identified from the point of diversion for entry of construction vehicles and supervision vehicles. Removable barricades with flagman to be provided to caution the regular traffic to restrict to the entry in to the working zone

The construction zone shall be barricaded and maintained till the separation median and kerb is casted.

Flagman to be deputed whenever the work is being carried out on the median where the traffic is plying on the other side.

Speed limit of 20 KMPH to be notified at the areas wherever the works are going on.

Persons are not to be allowed to enter on the live road unless the flagman guidance is allowed.

V) SURVEY ON EXISTING LIVE UN-DIVIDED CARRIAGE WAY:

Traffic density to be observed and Survey works on live roads to be carried out only in the lean hours when the traffic is less.

Speed restriction on the road to be notified by providing 40 KMPH speed limit boards on the road wherever we are initiating the survey activities.

Traffic cones to be arranged to have lateral and longitudinal buffer zone as protection from regular road traffic. A flagman to be deployed on both sides to caution the traffic when the survey work is being carried out on centre of the road.

Arrangement to be done as shown in TMP_____ TMP_____ TMP __ when the work is going on the live undivided carriage way with the arrangement by shift able red reflectorized cones.

When it is not possible to occupy the part of existing carriage way with barricading by reflectorized cones. The traffic to be discontinued from plying temporarily on the carriageway for 2 min for measurement of 20 m, marking shall be taken and made continue the traffic and for the next 20 m repeating the same.

Flagmen (refer flag man clause) and a caution board to be provided as shown in TMP ____ on both sides start and end of the transition zone.

No personnel are allowed to come out of the safety zone, unless flagman guidance.

Use of reflective jackets to be ensured for all the survey team members.

Availability of first aid kit, water bag, communication service to be ensured along with the working team.

Survey activity to be stopped temporarily whenever the traffic density increases and whenever more than 5 vehicles of any kind gets stopped on either side of working zone due to the survey activity.



Vehicle should be parked at a safer place on the extreme side of the road and parking indication to be ensured to caution the vehicular traffic.

Lengthy instruments such as staffs, tripods should be folded / shortened while carrying across the road.

Usage of stones / concrete blocks to be discouraged as markers / indications during survey works on the roads. If used to be cleared before leaving the area.

No survey equipment should be unmanned at any moment to avoid accidental contact by moving equipment in the area.

Other precautions during SURVEY works either on road or away from road

The area to be observed for overhead power lines, if any power lines are available in the vicinity entire survey team to be reminded the hazard involved when they handle survey equipment.

Usage of aluminium survey staff to be avoided wooden / PVC / FRB survey staff shall be used to avoid induction from overhead power lines.

Persons are not to be allowed to move in slushy area / water stagnated areas during the survey activity unless it is confirmed that the area is safe.

When the area is with bushes there may be possibility of movement of snakes. Care to be exercised such as clearing the bushes, sprinkling of carbolic acid, ensuring the usage of gum boots.

Precautions like rest intervals in between the work to be practiced to avoid sun stroke during summer season.

Steel rods places used as markers on roads to be made visible by providing coloured tape etc. to avoid foot injuries to the persons moving in the area.

VI) TRAFFIC MANAGEMENT ON ROAD JUNCTION WHERE CONSTRUCTION TRAFFIC MEETS LIVE TRAFFIC FROM QUARRY / PLANT / BORROW PIT.

Where vehicles are more to the approach junction from the side road, permission shall be sought for providing speed breaker at junction from local traffic police and road authority.

Flagman shall be kept in the peak time provided with flag and baton light.

Cautionary boards and speed limit boards to be displayed as shown MTP _____

All vehicles from approaching road should be cautioned to STOP, LOOK AND GO.

Spillage of earth / Gravel / Aggregates / Bituminous mix from the tipper shall be cleaned on regular basis.

Road signs and caution boards to be displayed. All Construction vehicles must follow lane discipline and road signs.



VII) TRAFFIC MANAGEMENT PLAN DURING THE CONSTRUCTION OF BRIDGES / CULVERTS.

Regular traffic including construction vehicles to be allowed to ply on the existing bridges / on the existing approach carriage ways with the restricted speed limit of 20 KMPH.

Load carrying capacity of the existing bridges to be enquired in consultation with the concerned authorities and caution boards to be displayed accordingly.

Barricades and caution boards are to be provided as shown in TMP ____ when the new bridge construction work is going on and traffic is plying on the old bridge and carriage way and construction vehicles also directed to old bridge.

Movement of persons working with bridge construction to be restricted on the existing bridge and carriage way.

Proper approach to be provided to site of bridge construction from the existing carriage way.

When traffic is diverted on the new carriage way and the old bridge is in use the diversion arrangements to be made as per lay given in TMP ____ and to be maintained till both the carriage ways are connected separate bridges.

Barricades with reflective nature to be provided on both sides of the bridge on carriage.

Way under construction to caution / guide the construction vehicles away from the structural works.

Speed restriction board to be arranged for a distance of half kilometre advance and after the working zone and along the working zone at an intervals of 90 meters.

Traffic to be allowed to ply on the existing carriage way and proposed service roads to be developed.

Approach way for the construction vehicles and machinery to be developed to the proposed widening area from the existing carriage way.

Proposed service roads to be developed on both sides of the working zone.

Traffic to be diverted on to the service roads and the caution boards diversion boards to be displayed as shown in TMP ____ / TEM ____

Flagman to be provided at the location of proposed underpass to guide the traffic to prevent to enter to work zone

The area around the proposed excavation for the RE wall foundations to be barricaded with fixed / shift able barricades / GI sheets with wooden / metallic poles painted with red and white strips. Barricading to be carried out before starting the excavation leaving one mtr. Width of safety zone from edge of the excavation.



Reflective indication to be provided for the barricades to caution the traffic in night hours.

Care to be exercised and the area to be cordoned when the RE wall panels are being erected. All the erection activities to be carried out only inside the work zone.

When the area adjacent to the RE wall is developed to the road level pit to be back filled to the road level and adequate compaction to be ensured.

Service roads / diversion roads provided adjacent to the work zone to be maintained during the entire period construction such that no soil or debris is accumulated and rain water is disposed immediately.

Care to be exercised while handling any lengthy materials beyond the barricaded area. Flagmen to be placed to caution guide the traffic when such activities are being carried out.

Vehicle movement to the barricaded work zone to be allowed only through identified from entry and exist.

VIII) TRAFFIC MANAGEMENT DURING ACTIVITIES INSIDE MEDIAN / ISLAND

The traffic would discontinue from plying on one side of the divided carriage way

The construction vehicles and supervising vehicles to be allowed to work on the other side for dumping the earth stones and other activities inside the median.

Whenever we require to work on the median area where traffic is plying on both sides of divided carriage way traffic to be discontinued temporarily on the carriageway; for 2 min for reversing & dumping earth / stones / etc. by the direction of helper and the flagmen and continue the traffic and for the next trip repeating the same.

One flagmen shall be placed each on one side of the reversing vehicle whenever the traffic is plying on both directions in case of undivided carriage way.

Reflectorized cones / barriers to be provided to redirect vehicles away from safety zone. Cones flagman to be withdrawn immediately when the dumper is removed form location.

Vehicle and dumpers are not allowed to ply on the opposite direction to the normal traffic when both sides of divided carriage way is use.

No personnel are allowed to come out of the safety zone, unless flagman guidance.

12.6 I SAFETY DURING BALSTING OPERATIONS AT QUARRY / HILL AREA

Hazards Involved

Premature Blasting

Hit by rock

Handling Mis-Fire



While Transporting Explosives.

Any vehicle used for transporting explosives and detonators shall be marked on all side with the word "EXPLOSIVE" in Red Letter on White Background.

All vehicles must be equipped with a Fire Extinguisher. The driver & helper must be trained to use it.

Do not carry explosive and detonator in the same trip, both shall be in separate trip or to be shifted in a separate van. No person shall be allowed to smoke or carry matches or any other flammable material along with explosives.

No motor vehicle carrying explosive shall be left unattended.

Storage of Explosives and its Agent.

Explosive and detonators must be stored in a non-flammable and approved containers only. It must not be stored in a same container.

Smoking and open flames shall not be permitted within 50 feet of explosives and detonators storage area.

Drilling:

Area to be cleaned before starting drilling operation.

Drilling should not be carried out in the area where the earlier drilled holes are visible unless it is ensured that the hole is without any charge or left over explosive material of earlier blasting.

Usage of respiratory protection and eye protection and ear protection to be ensured during drilling operation.

Preventive measure like covering with wet gunny or pouring water to be ensured at the point of drilling to avoid flying dust.

Fall protection to be ensured when the person is working at edges of the bench more than the height of 2 meters.

Only authorized person to be allowed to operate the wagon R drilling machine and tractor compressor.

Grinding wheel attached to tractor compressor to be ensured free from defects and wheels worn out beyond the limit to be replaced.

Wagon R drilling machine or tractor compressor to be ensured fit and subjected to pre-deployment inspection by EHS department before engaging on job.

For Loading Explosives into Drilled Holes.

All the drilled holes should be sufficiently large to admit freely the insertion of the cartridges of explosives.

Tamping shall be done only with wood sticks or plastic tamping poles without exposed metal parts. Violent tamping must be avoided. The primer must not be tamped.



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No holes shall be loaded except those to be fired in the next round of blasting. After loading, all remaining explosives and detonators shall be returned to an authorised person and stored in magazine.

Drilling shall not be started until all remaining butts of old holes are examined for mis-fire and if any are found they shall be re-fired before work proceeds.

No persons shall be allowed to deepen drill holes which have been loaded with explosive agent.

No explosives or blasting agents shall be left unattended at the blast site.

No machine and equipment shall be operated within 50 feet of loaded holes.

Power lines and portable electric cables for equipment being used shall be kept at a safe distance from explosives being loaded into the holes.

Warning sign indicating a blasting area must be maintained at all approaches to the blasting area.

No loaded holes shall be left unattended or unprotected.

Firing the Blast:

Before a blast is fired, a loud warning signal should be given by the blaster.

Ensure all surplus explosives are in safe place and all equipment, employees are in the safe distance.

Flagman should be positioned on highways which pass through the danger zone so as to stop traffic during blasting operation.

Blasting timing is to be fixed. No blasting to be carried out before sunrise and after sunset.

Inspection after Blasting

Immediately after the blast has been fired, the firing line should be disconnected from the blasting machine or where power switches are used, they should be locked open or in the off position.

Sufficient time shall be allowed, for the smoke and fumes to leave the blasted area before returning to the spot.

An inspection of the area and surrounding should be made by the blaster to determine if all charges have been exploded before workers are allowed to return back to operation, and in tunnels, after the muck pile has been wetted down.

Safe Handling of Mis-Fire:

If a misfire is found, the blaster should provide proper safe guards for excluding all employees from the danger zone. No other work should be done except that necessary to remove the hazard of the misfire and only those employees necessary to do the work should remain in the danger zone.

No attempt should be made to remove explosives from any misfired hole. Another hole is to be drilled parallel to misfire and the new hole is blasted.



II SAFETY DURING BLASTING OPERATION AT GHAT SECTION:

All above precautions should be followed at road side blasting also and some additional precautions measures given below:

Pre-sharing / Presplitting:

The purpose Pre-sharing / Presplitting drilling is most successful and widely adopted controlled blasting method and create plain shear on the desired line of break, exposing the barrel of the blast hole are usually 50mm – 100mm in diameter. The spacing between the holes varies between 10 – 20 times of hole diameter.

In this case we are considering 60 mm dia of holes, the holes centre to centre is 450 mm i.e. 7.5 times of the dia. The depth varies 6.0 – 7.0 depend up on the existing ground level. The site blasting location is nearly 15 meter away from existing road, to avoid over fly of break rocks on the road.

Muffling:

This shall be done to control the fly rock, MS plates of 3 sqm to 4 sqm in size of 8mm/10mm thickness / rubber pads / Muffling ring shall be used for this purpose. The plates / pads shall be kept on the top face of rock to cover the charge holes, in such a manner that the edge of the plate/pads exceeds the extreme charge hole at least by 500mm. Over the muffing plates / pads a load of 150 Kg/sqm shall be placed by means of sand bags.

Relay delay arrangement should be arranged during blasting at ghat section.

Traffic should be closed both side of the road minimum 500 mtr, distance from blasting area by local police.

Road side holes should be filled by demolition powder for crake the rocks at the place of explosive.

A grader and backhoe load should be stand by near blasting area for removing flaying rocks on road.

No loaded holes shall be left unattended or unprotected and safety arrangement during cutting period given as per given below drawing:

12.7 SAFETY RELATED TO ACTIVITIES INVOLVED IN CONSTRUCTION OF ROADS:

I TREE CUTTING

The area adjacent to be observed for overhead power lines and other utilities. Preferably the area around the tree too be made free from these utilities before attempting to cut the tree.

In case we require to attempt tree cutting which is adjacent to power line and with in the limit safe distance, power shut to be availed from the concerned authorities and it is to be requested for the presence of the representative at the time of tree cutting.

Traffic on the existing road to be diverted away from the tree cutting area and the working zone to be earmarked and barricaded.



Flagmen to be deployed to caution the traffic and persons moving on road.

Preferably tree cutting to be carried out in lean hours when traffic is less.

Initially branches which are likely to fail on the road are to be cut and lowered in small pieces and finally stem to be cut.

Guide ropes to be provided with tension such that the tree lean on to the opposite side of the road in the process of cutting.

Ensure safe clearance around the tree when it is going to fall.

Ensure that electric saw cutter should not be used during rain and Power supply cables of the machine should not be entangled with falling branch.

Tree should not be left after attempting cutting in the half way.

Authorised operators to be ensured to operate cranes, trailers.

Tree cutting should not be carried out during stormy & heavy rain.

Ensure safe usage of electric saw cutter and only trained and experienced persons to be deployed to operate the while operate the machine.

Ensure usage of face protection, hand protection, ear protection nose protection, head protection, foot protection, while operating saw cutting machine.

II EMBANKMENT CONSTRUCTION / SUB GRADE PREPARATION / GRANULAR SUB BASE / WET MIX MACADAM (GSB/WMM)

Fitness of the vehicles & other earth moving equipment's used to be ensured by pre-deployment and periodical inspection by EHS / P&M persons.

Ensure loading of soil in vehicles such that it should not spill all along the road.

Proper approach to be developed / made from the borrow pit area to the working zone.

Flagmen to be deployed at the road intersections from borrowing point to main carriage way and at the transition point to construction working zone.

Adequate caution boards / barricades to be provided as indicated in the traffic management plan to caution the regular traffic.

Borrow pit areas and approach roads to the working zone to be checked for overhead power lines. In case of power lines are crossing across the roads cautioning to be provided by making height restriction arrangements like goal posts etc. or the approach road maybe diverted away from the hazard.

When there is a threat of snakes is suspected the precautions like sprinkling of carbolic acid and maintaining the minimum illumination level to be ensured.

No body should be allowed to stand and move in the swing area of excavators at borrow pit area.



Nobody should be allowed to sit and take rest under the parked vehicles. Ensure that rest shelter be provided for the workmen.

Persons are not allowed to sit on the side of excavator operators when the excavator is running.

Only authorized drivers, operators to be allowed for operating excavators and driving the dumpers.

Sprinkler bar provided to the water tanker should be in suitable condition so that to avoid pot holes on the road.

Vehicles & earth moving equipment's should not be allowed to be parked on slopes. Also usage of parking brakes and choke blocks to be ensured whenever vehicles are parked.

Speed limit of 20 km/hr to be maintained ensured at the borrow pit area and at the unloading points and at the narrow village roads.

Vehicle shall be adequately marked with red lanterns, red flag when it parked on the side of road.

Vehicle should not be un attended even for short period till material is unloaded.

No person should be allowed to travel along with the load during transportation.

Persons are not be allowed to sit or take rest on the dumped soil heaps at the work place. Rest sheds to be provided for the purpose of taking rest.

Ensure minimum illumination level of 5 lux at the borrow area and the dumping points.

While working at night safety requirement should be fulfilled as detailed in "Work at Night"

III. SAFETY IN RE WALL

All construction personnel must wear minimum requirement of PPE helmet, safety shoe, and gloves etc. Stacking should be done after compacting, levelling the ground. And not more than 1.5m height. Elements in storage shall be supported on film blocking. To eliminate the danger of chipping, cracks, fracture and excessive breaking stress while transporting / handling

To avoid risk of a fall over, no dummy panel should be erected.

For lifting equipment & hand signals refer (crane operators)

During erection of RE panels the area underneath should be barricaded to avoid any personnel vehicle entry. All construction plant having a mass of exceeding 1000 Kgs shall be kept at least 1.5m away from the phase of slope or wall. In this area vibrating plate compactor of maximum weight 1000 Kgs or steel wheeled roller of maximum weight per meter width 1300 Kgs shall be used.

IV DOZING (SAFE USAGE OF DOZER)

Fitness of the machine other earth moving equipments used to be ensured by pre-deployment and periodical inspections by EHS / P&M persons.

Persons are not be allowed to sit or take rest on the dumped soil heaps at the work place.



Dozer operator should have valid HMV license.

At the close of work dozers should be left on level ground.

When a dozer is moving uphill the blade should be kept low.

Dozer blades should not be used as brakes except in an emergency.

No person should be allowed to sit on the side of a operator when machine is running.

Minimum illumination level to be ensured when the dozing activity is being carried out in night hours.

Before leaving a bulldozer the operator shall

Apply the brakes

Lower the blade

Put the shift lever in natural.

V. GRADING (SAFE USAGE OF MOTOR GRADER)

Fitness of a machine other earth moving equipments used to be ensured by pre-deployment and periodical inspection by EHS / P&M persons.

No persons to be engaged in the nearby area (i.e. within the 10 mtrs. Distance) where the grader is running.

Speed of the grader to be restricted to 20 KMPH while reversing. Reverse horn of good audibility to be ensured while reversing.

Inspect leakage of fuel, lubricant & hydraulic system and rectify if any. Also check tyre inflation.

Persons should not be allowed to sit and travel along with operator.

Visibility of the operator should be ensured in all the directions and it should not be obstructed by any arrangement in case of seasonal inconvenience like rain, sunlight etc.

Minimum illumination level to be ensured when the dozing activity is being carried out in night hours.

VI/ DLC / PQC

All construction personnel must wear minimum requirements of PPE helmet, safety shoe, and gloves etc. Suitable traffic layout shall be selected as example shown in detail “Traffic Management” drawing. While operating from batching plant approach junction should be followed as shown in layout:

Safety aspects listed in Paver shall be followed as shown in “Major P&M”

While working at night safety requirement should be fulfilled as detailed in “Work at Night”

Safety requirements while using transportation shall be followed as detailed in “Transportation”



VII KERB

All construction personnel must wear minimum requirement of PPE helmet, safety shoe, and gloves etc. Suitable traffic layout shall be selected as example shown in detail “Traffic Management” drawing. Safety requirements while using transportation shall be followed as detailed in “Transportation” While operating from batching plant approach, junction should be followed as shown in layout: 6 A flagman shall be kept while working near live traffic.

VIII ASPHALT WORKS

Prime coat / Tack coat / Bituminous Macadam / Semi Dense Bituminous Concrete (SDBC) / Dense Bitumen Concrete / Bitumen Concrete (DBM / BC)

All personnel engaged on work with hot asphalt should wear complete clothing covering the entire body, shoes with sound soles and heavy socks.

The asphalt distributor used to apply the prime and tack coats for new surfaces should be kept clean and free of asphalt residue, burners should be examined for freedom from obstruction and the circulating system should be checked for proper circulation and for leaks.

Highly volatile fluid such as petrol should not be used for cleaning purpose and open flames should be kept away from distributor spray bars.

Rags or waste material capable of spontaneous ignition should never be allowed to collect on the distributor.

The exhaust system of the truck motor should be vented away from the tank and checked frequently for holes and leaks.

Only familiar persons with the asphalt kettle and the characteristics of asphalt should be chosen as kettle attendants. Gloves must be worn when handling the hand spray attachment.

All loose connection should be tightened and worn hoses replaced immediately.

Persons working nearby when prime coat is being sprayed to be provided with respiratory protection.

IX PAVING (SAFE USAGE OF PAVER)

Fitness of the machine other earth moving equipments used to be ensured by pre-deployment and periodical inspection by EHS / P&M persons.

Safety instructions shall be followed according to the manufacturer’s guidelines as mentioned in the operating instruction manual.

Fire Extinguisher should be available along with paver.

Only operators with valid license and authorized by P&M department and allowed to operate the paver. Flagman to be engaged to guide the movement and positioning of dumpers.



No person should be allowed to stand or work near the skip of the paver when it is in operation.

Minimum illumination level to be ensured when paving being carried out in night hours.

When string is provided by temporarily blocking the passage the area to be physically barricaded.

X. ROLLING (SAFE USAGE OF FOLLER)

Fitness of the roller being transported to be ensured by Pre-development and periodical inspections by EHS / P&M persons

Authorised person to be engaged to operate the roller.

Do not allow any person to sit or rake rest in front side or underneath the parked roller.

Adequate rest shelters to be provided for the workmen to take rest.

Ensure the placing of chock blocks when roller is parked.

Before starting the operator should ensure that no person is available under or near by the roller

Ensure availability / application of Delay start mechanism & push switch which gives alarming horn before the engine of the roller starts

Don't move the roller in slopes with neutral gear condition.

When roller is parked at the working place or on the side of the approach way provided for construction vehicles a red flag / cones to be provided.

No body should be allowed to work / move nearby the roller in operation.

XI SHOULDER AND MEDIAN FILLING

All construction personnel must wear minimum requirement of PPE helmet, safety shoe, and gloves etc. Suitable traffic layout shall be selected as example shown in details "Traffic Management" drawing. While operating from borrow area approach junction should be followed as shown in layout: 6 dumping on shoulder to be done with proper planning over dumping flooding of water to be avoided.

While rolling the shoulders traffic to be stopped at safe distance. Providing cautionary boards, flagmen with safety jacket, cones etc.

Vehicles to be provided with reverse horn with sufficient manoeuvring place.

XII ROAD MARKING:

All construction personnel must wear minimum requirements of PPE helmet, safety shoe, Reflective jackets, gloves, goggles, Nose Mask etc.,



Avoid overheating over heating of thermos plastic material more than 70% given flash point as per MSDS (it is generally not more than 210⁰ c.)

Signalman should be placed while working near curves and middle of the road.

Temporary barricades / traffic cones to be placed adequately at required places & should be removed when not required.

The vehicles used to shift boards should be parked safely at the edge of the road.

Flagman with flags & sign paddles should be placed at the required locations to control the traffic.

Avoid using stones to barricade the marked area.

No materials should be left on the road. Ensure to clear all the tools & materials from the work area after completing the work in each location.

XIII. FIXING OF METAL CRASH BARRIERS / KERB CASTING / FIXING OF GUARD POSTS AND SLOPE PROTECTING WORKS:

Activities to be carried out by diverting traffic on the other lanes by making the diversion arrangements shown in TMP_____ and TMP _____.

All construction personnel must wear the reflective jackets and other of PPE like helmet, safety shoe, gloves etc.

Any materials such as sand, grass, metal crash barrier, shuttering materials etc. should not dump outside of safety zone, risk of flew and may hit when the corner of the vehicle's tyre run over.

Movement of Persons, construction vehicles and parking of construction vehicles to be totally avoid on the lanes which are allowed for regular traffic as the regular vehicles may tend to move very fast due to the completion stages of the road.

XIV FIXING OF PERMANENT SIGN BOARDS:

Boards should not be shifted across the road manually. The vehicle carrying the board to be parked in the nearby to the location where the board is likely to be placed and necessary parking caution to be provided.

Boards should not be projected out of the vehicle being transported more than the width of the vehicle in any circumstances. If board is projected beyond the length of the vehicle it is to be provided with caution flags or lights.

Boards to be supported adequately before they are fixed rigidly by concreting. See that the supports are not extended towards the road where traffic is running.



Permanent speed limit boards to be provided by ensuring all works in that particular zone is completely and by removing the speed restriction boards of 40 KMPH provided during construction period.

Ensure to fix the permanent boards at the specified distance without fail.

Ensured to fix the permanent boards at the specified height & ensure the soil stability.

Permanent boards should be fixed in the location where it is clearly visible to the road users.

12.8 SAFETY DURING THE ACTIVITIES RELATED TO RCC STRUCTURES.

I EXCAVATION:

Check underground utilities from the concerned local authorities if existing and obtain the permit for excavation. Ensure underground installations are protected, supported or removed as necessary to safeguard the persons working.

Soil collapse preventive measures to be adopted when the excavation is more than 15 mtrs. By carrying out step / slope excavation or by providing shoring.

No excavation to be carried out on the side of existing old houses or structures unless the preventive measures for collapse of structures are taken in consultation with site EHS officer.

The sides of the excavation to be checked every day before starting and immediately after any explosion at nearby location and after rain, storms to ensure safe working condition.

No loose materials to be placed at the edges of the excavation pit. Safe distance of minimum 1.5mts. to be maintained to stack the excavated earth.

Light motor vehicles should be allowed only by maintaining safe distance of min. 1.5 mtrs. From the edge of the excavated pit.

Heavy equipment's such as a excavation machinery and road traffic shall be allowed only by maintaining a safe distance equal to the depth of the pit.

Safe accesses to provide while working inside the excavation trench of depth of 1.5mtrs. & above.

Physical barricade to be ensured in the work area all around the excavated pit.

Adequate illumination to be ensured in the areas where excavations are made and reflective indication to be provided wherever the traffic is running on the side excavations.

II REBAR HANDLING (E.E. CUTTING, BENDING, SHIFTING & TYING)

The passage to be ensured clear of obstruction while handling the reinforcement rods manually.



Reinforcement rods should not be lifted vertically to higher elevations. To be lifted horizontally with Polypropylene rope.

Reinforcement rods should not be lifted through temporary stair cases where the persons are moving.

Usage of shoulder pads, and hand protection to be ensured while handling reinforcement rods.

While shifting the reinforcement rods by trailer it is to be ensured that the rods should not project beyond the trailer.

Whenever the rods are projecting care to be exercised to provide a caution flag or light.

Slings being used for handling the reinforcement rods should be checked for defects. On every day before use.

Safe sling angle to be ensured while lifting with cranes.

Reinforcement rods of different lengths should not be lifted in one bunch.

Reinforcement rods shall not be handled and lifted wherever the overhead power lines are existing nearby. EHS engineer to be consulted before carrying out any rebar activity such area for necessary guidance.

Loose reinforcement rods should not be left on higher elevations and on the working platforms.

Reinforcement rods should not be stacked on the shutters at one location such that it gives overload to the scaffolding.

Usage of guide rope to be ensured while shifting the reinforcement rods with crane and while receiving on the higher elevations.

Reinforcement rods should not be cut into small pieces with chisel and hammer in higher elevations as these may fly.

III. WORK AT HEIGHT

All construction personnel must wear minimum requirements of PPE, helmet, safety shoes, and gloves etc. Working above 1.8m height shall be considered as work at height. All precautionary measures listed in this should be followed. No work shall be allowed without proper ladders, proper temp. Working platforms / scaffolding as specified in those chapters.

No work should be allowed by standing over wooden boxes, empty barrels and other make shift arrangements. Safety belt with double lanyard should be used while working at height.

Personnel travelling or working in elevated areas more than 2 metre above ground level or adjacent surface where a fall exposure exists shall make use of secondary fall protection in securing their lanyard to a structure.

As a minimum personnel are required to wear fall prevention equipment under the following circumstances. On all stages, floats and any other type of suspended scaffolding, scaffolds with



incomplete decking or incomplete guardrails, sloping roofs with 2 meter of the edge of floors or roofs where there are no guardrails or wire-rope railing. Personnel working or travelling near the unprotected /open sided floors must use safety belt with its lanyard attached to any permanent structure by means of a separate lifeline or having minimum 8mm dia wire ropes.

Fall protection appliances shall be worn while erecting scaffolding, temp, work platforms erecting structures and building.

Temp. edge protection with top handrails at a height of 1.1 metre and midrail at a height of 0.55 metre and with toe-board shall be installed in all around the openings in floor slabs. The small openings floor covers shall be provided with adequate strength.

Temp. edge protections are applicable to any elevated areas of having more than 2 meter height from floor slabs. In case of any practical difficulties where it is not possible to fix toe boards and materials fall prevention is difficult to maintain, there will not be any loose materials allowed to lie on the platforms / floor slab. All the hand tools and other materials being handled should be tied off with lanyard. Area underneath should be barricaded while work is being carried out with necessary warnings to avoid personnel movement or safety net shall be fixed.

Handling all small materials like scaffolding clamps, bolts / nuts, couplers, small hand tools, etc. should be by means of pouches or in boxes. Conveying couplers at elevations by throwing them is strictly prohibited.

It is the responsibility of working crew, doing works at higher elevations to ensure that materials are retained floors and not to allow any material fall from height.

IV SHUTTERING

Shuttering shall be done as per the given scheme drawings only.

No loose materials should be kept on the form work panel or platforms. Usage of boxes / containers to be used for keeping nails etc.

Shutter Panels to be pre-checked for defects or damages before lifting.

All the main props shall be fitted with folding tripod.

All the intermediate props should be fitted with supporting heads.

Placement & fixing of locking pins should not be omitted & it should not be replaced by any other materials.

Condition of the components shall be checked & damaged one shall not be used.

Usage of lifelines and full body harness to be ensured when the persons are placing the shutters and edge protection / guard rail is to be provided when the floor / slab is ready for placing the reinforcement.

Lifting of materials & other shuttering components shall be carried out by using derrick & pulley arrangement.

Shuttering oil should be applied gently over the shuttering plates. Overdose may make the floor form more slippery.



Instruction should be given for NO SMOKING and care for no fire / hot work occurs nearby.

Spillages of shuttering oil at work place to be avoided. Any spills to be cleaned then and there. Before it is cleared for concrete pouring, carpentry foreman shall inspect the supports of shuttering for adequacy. While pouring the concrete, persons shall be assigned to keep a watch on the shutters and its supports esp., during major pours.

Skilled workmen shall be employed for shuttering & de shuttering activities & competent person should monitor the activities.

V. DE-SHUTTERING:

Each tier shall be completely dismantled and materials to be lowered to the ground before beginning to dismantle the next tier.

The area of de-shuttering to be barricaded to prevent the entry of other persons.

Power cables, light fittings underneath the area of the de-shuttering to be removed before starting the de-shuttering.

Dropping of materials to be avoided to prevent damage to the materials & injury to the workmen.

Before starting the de-shuttering activity the scaffolding towers to be checked for missing components and to be ensured that it is stable.

Loose materials should not be left at higher elevations.

Safe access & work platform to be provided for the workmen when working at height. No materials shall be left scattered on the ground. Good housekeeping to be ensured.

VI. CONCRETING (BY CONCRETE PUMP)

Only authorized person to be engaged as operator. No person's movement to be allowed in front of the machine and the ramp area where the transit mixers are being positioned.

The ramp for transit mixer to be made with slope not exceeding 30 degrees.

Stoppers to be ensured at the end of the ramp to restrict the transit mixer movement while reversing.

The signalman or the operator should not move or stand in between the transit mixer and the concrete pump while positioning the transit mixer.

The delivery line to the pouring point shall be laid with as minimum bend as practical possible.

Ball catcher is fixed at the end of the pipeline while ball passing operation and ensures no one stands near the end of the pipeline or in its direction.

The cleaning of the concrete pump to be carried out only when the pump is completely isolated from power and the operator should ensure person engaged for gate cleaning is away from the machine before making any attempt to operate the pump.



The machine operator must always have clear view of the hazard zone.

Keep working area clear from obstruction.

Eating or drinking or keeping foodstuff near the machine shall not be allowed.

Usage of rubber hand gloves and gum boots to be ensured for all those who are working in contact with concrete.

Do not attempt to open the clamp of the pipe line when it is in pressure.

All the joints of concrete pipe line to be tightened adequately. Damaged clamps should not be used for clamping.

Pipe line pieces of worn out flanges should not be used as these may not hold the clamp properly.

Pipeline to be adequately supported. i.e. horizontally laid pipeline shall be supported at minimum 3-meter distance. Vertical line shall be supported at the bottom of the first vertical pipe and each additional pipe shall be secured with the structure.

Concrete pipe line should not be supported or tied to the scaffolding tower which is part shutter supports. Separate scaffolding tower to be provided for fixing the pipe line.

Working platform to be provided in the internment intervals for approaching the vertical part of concrete line to dismantle in case of choking.

Pipe line with holes and weak wall should not be used. Concrete should be evenly spread on shutters. Should not be allowed to become a heap at the delivery point of pipe line.

Rate of rise during the concrete pouring to be restricted as per the design recommendations.

VII. CONCRETING (BY BOOM PLACER)

Precautions no. 1 to 11 mentioned for concreting by pump are applicable.

Observe the area for availability of overhead power lines and other overhead utility services. Keep minimum 6-meter distance from H.T. Preferably locate the Boom placer in such a location as possible as away from the overhead power lines.

Approach route must be also determined.

Keep enough clearance for complete extension of the out rigger

The boom extension area must be clear from any obstruction to avoid knocking the boom against any object.

Placement crew must follow the instruction of the operator.

Lash the end of the flexible hose to control the swing of the hose.

Never jump down from the machine.



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Keep steps, platform, control, monitoring devices, etc. free from oil, dust, grease etc.

Before each use the entire machine must be checked visually.

Never drive the machine with placing boom extended.

Never reach into the machine parts when motor is running or the hydraulic pressure accumulator is charged.

Do not move the boom when the persons are holding the elephant hose. Keep the persons clear when the boom is being placed.

VIII CONCRETING (BY USING CRANE BUCKET)

Discharge gate of concrete bucket to be closed completely and there should not be any leakage of slurry or concrete.

Concrete bucket should not be filled beyond 75% of its full height to avoid spilling during lifting / shifting.

Load test to be carried out before first usage and after carrying out any hot works on the lifting arrangement.

Lifting hook / sling of the bucket should be checked every day before use.

Load test to be carried out for the bucket with 50% excess of its weight with full concrete.

Load test to be carried out before first usage and after carrying out any hot works on the lifting arrangement.

Lifting hook / sling of the bucket should be checked every day before use.

Double slings to be provided when the bucket is being lifted with slings. One standby sling to be provided for safety purpose if the bucket is provided with lifting rod.

Usage of tag line (rope) to be ensured for receiving the bucket.

Bucket should not be lifted when the wind velocity is more than 40 KMPH.

Persons should not attempt to pull or push the bucket away from its actual hanging position. Positioning of the bucket to be done only by operating the crane.

Material which is projecting out of the bucket should not be shifted in the bucket.

IX. CONCRETING (BY USING CHUTE)

Transit mixer should not be brought too close to the pit or trench during chute concreting. Minimum of 1.5mtrs. clearance to be ensured from the edge of the excavation.



Suitability of soil to be checked before placing the first transit mixer and this method is not to be preferred when the ground is wet.

Stoppage to be provided to restrict the movement of the transit mixer while reversing towards the pit.

Proper signalling to be ensured when the transit mixer is reversing towards the pit.

Chute should be adequately supported such that it should not slide towards the pit or on to the sides.

Access to be ensured on the side of chute to push the concrete when it is required.

Chute to be made with metallic pipes of adequate strength such that it should not fall when it is use. While making the chute the approximate load of concrete for its total length to be considered.

X CONCRETING BY (PIPELINE)

The delivery line to the pouring point shall be laid with as minimum bend as practical possible.

The horizontally laid pipeline shall be supported at minimum 3 meter distance.

Vertical line shall be supported at the bottom of the first vertical pipe and each additional pipe shall be secured with the structure.

Make sure that the pipeline should run within the structure.

After assembling of the pipeline check couplings thoroughly.

Ball catcher is fixed at the end of the pipeline while ball passing operation and ensures no one stands near the end of the pipe line or in its direction.

XI CONCRETING (BY PERSONS)

Usage of rubber hand gloves, gum boots to be ensured for all the persons those who are in contact with the concrete.

Mortar pans should not be thrown from height.

Proper working platforms to be provided for the persons to stand and shift the concrete to higher Elevations.

Female workers with loose clothing should not be engaged with or near the machinery like vibrators and concrete mixers.

Persons to be cleared off from the area while reversing the transit mixer and unloading the concrete.

Rigging Activity (Erection of pre-cast girders and other pre-cast elements, RCC Hume pipes):

Crane and lifting tackles should be ensured free from defects and fitness to be ensured. Only authorized operator to be allowed to operate the crane and only experienced riggers and kalasis to be engaged on the job.

Levelled and compacted ground to be ensured for positioning the crane during erection.



Crane should not be overloaded beyond the safe working load with reference to the load chart of crane.

Nobody should stand or move under the suspended loads.

Slings and D shackles are to be ensured free from defects and safe sling angle to be ensured during lifting. Usage of double slings to be preferred during erection.

Chain blocks to be checked and ensured free from defects and to be certified by competent person. Usage of tag line or guide rope to be ensured during erection & shifting of materials with crane.

Safe distance to be maintained from the live electric overhead lines while shifting the materials. If necessary power shut to be obtained from the respective authorities.

Signalman to be deployed during erection. Flagmen to be engaged to control the traffic while shifting the materials.

Components erected to be secured enough before lifting another component and till they are permanently fixed. Loose materials should not be left at higher elevations. Dropping of tools and materials from height to be avoided.

Safe access & work platform to be provided for the workmen when working at height.

Ensure to provide enough supports for the erected components.

Observe the wind velocity no erection to be carried out when wind velocity is more than 40 KMPH and the load is swinging on its own (Particularly during the erection of loads when they are more than one cubic meter by volume).

Erection area to be barricaded to prevent the entry of other persons.

XII PRE-STRESSING

Only authorized persons / technicians to be engaged on the job and closed supervision to be ensured till entire pre stressing and grouting activities are completed.

Strands to be uncoiled by arranging the coil in a cage / uncoiling frame otherwise the pointed end of the strand may hit to person while uncoiling.

Usage of cotton / leather hand gloves to be ensured while handling the metallic sheathing ducts.

Anchorage on both ends of the strand should be ensured intact before applying the load.

Final locking off the wedges to be done adequately after completing the stressing and to be maintained till the grouting activity is completed.

The disk cutter / cutting wheel being used for strand cutting should have the wheel guard.

RPM specified for cutting wheel and machine should match. Also the cutting wheel should be checked before use on every day.

While handling uncoiled strands care should be exercised that pointed end is coming in contact with the persons working nearby.



Uncoiled strands should not be lifted to higher elevation.

Sequence of operations and the amount of stress to be exerted on cable to be followed as per the approved methodology and given specifications.

Protective screen / barrier to be provided on front side of the stressing jacks wedges to prevent the fly of broken strands / wedges in case of any failure of strand.

Hydraulic pump and jack should be checked for leakages and any leakages to be rectified immediately.

Unauthorized entry to the point of pre-stressing operation to be avoided and watch to be ensured till the grouting is completed.

Ensure that the strands are kept away from welding cables as the welding sparks may damage the strand.

XIII ARC WELDING AND GAS CUTTING.

Hot work permit to be obtained while carrying out the welding / gas cutting operations in the areas where combust able / flammable materials are available.

Ensure all the moving and rotating parts of the welding machine are guarded.

Check the welding cables before use and the welding cables with damaged welding cables to be discarded.

Terminations and joints of welding cables are to be provided with lugs and always fastened with washers and nuts to have proper contact to avoid generation of heat.

Do not allow any body to join or handle the live welding cable leads and terminals of the welding machine with bare hands.

Body of the welding machine to be provided with double earthing.

All rotating parts of the welding machine to be provided with cover / grill.

It is to be ensured that the welding cables never laid in contact with the power cables and gas hoses.

Always ensure the area of welding circuit and the area where the welder is standing / working shovels be maintained dry. No welding operation is allowed when the area is wet.

Rain protection / shed to be provided for the welding machine when working at the open place.

Always ensure that the welding electrodes and electrode holders in dry condition and they should not be handled with bare hands.

Ensure usage of face protection, eye protection, hand protection, foot protection to be ensured for welders.



Electrode holders should not be left with electrodes when there is no welding activity and also the machine to be ensured in OFF condition.

All the combustibles and other flammable items to be cleared from the area of welding before starting the work.

Fire extinguishers and suitable firefighting media to be made available at the area of hot work.

The area of the hot work to be observed for at least 30 minutes after stopping the welding activity for the initiation of fires from the residual sparks / hot metals.

Ensure pre-deployment and periodical inspection of all welding machines and ensure fitness.

Damage to the welding cables by running vehicles and handling of other materials to be avoided by proper laying of cables.

Ensure safe storage of oxygen & acetylene cylinders. Full and empty cylinders to be stored separately. Full DA and oxygen cylinders to be stored at a distance of minimum 10 feet.

Cylinders should not be dropped from height, rolled or dragged on the ground. Cylinders should be shifted only through trolley.

Cylinders should be placed / stored only at upright position.

Usage of cylinder valves to be practiced and the supplier should be insisted to supply the cylinders.

Usage of flash back arrestors to be ensured on the cylinder end and torch end of the hoses.

Usage of hose clamps to be ensured for connecting the hose pipes.

Hose pipes, regulators, cutting torch should be checked for leakage and defects on every day before starting the work.

Ensure correct gas pressure & nozzle size to avoid back fire & flash backs.

Always ensure the availability of the cylinder key to stop the gas supply in case of any emergency.

Cylinders and hose pipes should not be kept under the area where the welding / gas cutting works are going on and the sparks likely to fall.

Hot jobs to be marked as hot or watch to be arranged till they are cooled down to avoid burn injuries or fire initiation. Regulators with damaged pressure gauges are not to be used.

Availability of gas lighter to be ensured.

Whenever there is no work the cylinder valves to be ensured in closed position.

XIV ACTIVITIES AT CARPENTRY WORK SHOP

Machines to be placed such that a minimum of 1 m back space is provided for the operator of each machine.

Drive belts of all machines to be guarded. Circular saw to be provided with adjustable guard.



Each machine should have separate ON and OFF switch apart from the main isolation switch.

Use of dull blades to be avoided. Wooden places with knots to be carefully handled on machine as these may fly.

Only authorised persons are to be engaged to operate the wood working machines.

Push sticks to be made available for handling the smaller jobs on circular saw.

Respiratory protection and face protection to be ensured while working on circular saw and planing machine.

Large work places to be supported adequately.

Smoking to be strictly prohibited and NO SMOKING boards to be displayed conspicuously.

Availability of fire extinguishers and water to be ensured to deal with the fire emergencies.

Ensure that timber being used does not interfere with operations on adjacent machines.

Provide clear passageways. Keep the materials properly stacked and away from machine. The space around every wood working machine shall be free from obstruction.

The floor of the workshop shall be cement floor and it shall not be allowed to become slippery.

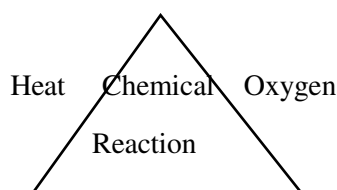
A cordoned area shall be demarcated to dump the wood shaving, dust and places. Wood waste and dust to be disposed in frequent intervals.

12.9 FIRE PREVENTION AND PROTECTION:

FIRE

Fire is an exothermic reaction, which burns the carbon vapors in combination with the atmospheric oxygen present in the air.

Fire is a triangle





Fuel

Fire is a whose basic sides is Fuel, Oxygen & Ignition without any of these basic sides it is difficult to form a triangle. The chain reaction makes fire continue to burn.

Fire

Class of Fuel's

Class "A"	Solid Fuels
Class "B"	Liquid Fuels
Class "C"	Gaseous Fuels
Class "D"	Fires in Chemicals

Types of Fire Extinguishers

Sand

Water

Carbon –Di-Oxide fire Extinguishers

Dry Chemical Powder Fire Extinguishers

Mechanical Foam Fire Extinguishers

Chemical Foam Fire Extinguishers

Use	Class "A"	Class "B"	Class "C"	Class "D"
Sand	YES – EFFECTIVE	NO	NO	NO
Water	YES	NO	NO	NO
CO2	NO	YES	YES EFFECTIVE	NO
DCP	NO	YES	YES	NO
FOAM	NO	YES EFFECTIVE	NO	NO
Special Dry Powder	NO	NO	NO	NO

.Principle of Fire Extinction

- Starvation, isolating the fuel from the fire reaction.
- Cooling, cooling the fuel below its flash point to avoid the emitting flammable vapours.
- Smothering, preventing the supply of oxygen to the fire reaction.
- Interruption of chain reaction.



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- Every employee shall be trained in the procedures and practices necessary to prevent the formation of fires. He must also know what to do if a fire does occur.
- When an outbreak of fire is discovered, immediate corrective action is essential in order to provide the best possible chance of putting it out quickly, thus reducing danger to life and damage caused to the minimum.
- When equipment that could give rise to a fire hazard is used, a suitable fire extinguisher should be placed within easy reach.

Causes of Fire:

- Malicious ignition
- Carelessness during cutting & welding
- Careless use of flammable materials and lit matches.
- Uncontrolled rubbish burning
- In correct storage
- Electrical faults

Preventive Measures.

- Reduction of fire load
- Provision of fire extinguisher and its upkeepment.
- Display of "NO SMOKING" board / caution board.
- Good housekeeping is essential.
- All temporary wiring should be well supported & protected.
- No electrical circuits should be overloaded
- Stacking of cylinder not near any live electrical wire.
- Education and training
- Fire Extinguishers shall be fixed at vantage points. Preferably DCP extinguisher shall be used.
- Inflammable items shall be removed to the area allocated.

GUIDE LINES FOR PREVENTING FIRES.

Stores

Combustible materials such as packing materials, cotton materials and any other product shall not be allowed to accumulate inside the stores so as to cause fire accidents.

Adequate fire extinguisher shall be procured and placed inside the stores.

Apart from the fire extinguishers, a separate water supply pipeline shall be kept at the fire prone area, its position shall be planned so that no hindrance is caused to the fire fighting operations by the permanent and temporary.



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Fuel of “A” class shall not be stored more than 20 litres, unless other wise a certificate obtained from the concerned department.

Fuel of “B” class shall not be stored more than 1000 litres, unless other wise a certificate obtained from the concerned department.

Carpentry Yard

Sawdust and other wooden scrap’s shall not be allowed to accumulate inside the work area.

A scrap bin and the bin to collect the sawdust shall be placed in the carpentry yard.

The sawdust and scrap bins shall be exhausted periodically. The Condition of the scrap bin and saw dustbin shall also be a part of the regular safety inspection.

A DCP fire extinguisher of 10 Kg shall be kept at the working condition in the carpentry yard and sufficient number of personnel shall be trained to operate the extinguisher.

Hot Works:

Wherever hot work is being carried out, adequate precautions such as but not limited to separating flammable substances 20 feet from the hot working area.

Hot work shall not be carried out over flammable material or materials with flammable coating. If work is to be carried out over flammable coating, the coating shall be removed for 100mm on both the sides of the hot works.

Hot work shall be carried out in the utilities carrying flammable materials.

Whenever hot work is being carried out, Firefighting equipment of portable type preferably 5 Kg DCP shall be kept readily available in the work spot.

Firewatchers shall be trained for each gang of hot works and they shall not be deployed for other activities.

12.10 CONSTRUCTION POWER SUPPLY:

The guidelines and general procedure for supply and use of electricity at site as laid out in the SAFETY GUIDE FOR WORKS CONTRACT shall be complied with before the power supply is used.

All cabling and installation shall comply with the appropriate statutory requirement as under:

- INDIAN ELECTRICITY ACT, 1990
- ELECTRICITY (SUPPLY) ACT, 1948
- IDNIAN ELECTRICITY RULES, 1956
- NATIONAL ELECTRIC CODE, 1985
- Other relevant rules of local bodies and electricity boards.



However, for providing temporary power supply at the site and general safety procedures for suing electricity shall be as set in the guidelines.

The lay out plan & sketch of construction power sub-stations & cable laying shall be prepared. The cables for construction supply shall be routed through underground with cable indicators so as to locate & maintain the same will be convenient.

The sub-stations & distribution Boards shall be inspected regularly by the concerned person on a regular interval. The megger value of all cables is to be checked in a regular interval to avoid electrical hazards.

All the power supply to construction site for portable tools shall be routed through Circuit Breakers or ELCBs / RCCBs.

Major hazards involves directly in use of electricity are Shocks & Burns ; it is also root cause for fire, ignition & mal functioning of equipment.

High risk involved in an electrocution, may occur due to;

Improper insulation

Improper cable joints

Improper lying of cable & its mechanical damage

Improper earthing

Improper neutral earthing

Over load

Improper weather protection

Improper rooming

Improper isolation

Unauthorised entries

Improper tools

Unqualified electricians

Inspections & reports

Some of the common causes of electrical accidents at sites and the precautions to be taken are listed below: -

INSERTION OF LOOSE WIRES IN SOCKETS WITHOUT PLUGS.

There are chances of insertion of earth lead in the live terminal by unskilled person. Even if wires are correctly inserted and proper earthing is not achieved due to improper contact pressure at the earth terminal, notwithstanding the matchstick of twigs inserted along with the wire.



Due to rough usage at site, only metal clad and interlocked type 15A/20A/30A combined switch-plug-socket units shall be used,.

Failure to check periodically the portable tools issued to agencies that retain the tools in their custody, till defect surfaces can cause an accident.

All portable tools shall be checked periodically and certified safe by the Plant and Machinery Department.

Failure to use hand gloves while using hand held equipments is unsafe.

Through the gloves affects the dexterity of the fingers, they are an absolute must while operating hand held electric tools.

Failure to earth the metal body hand tools and equipments due to

Usage of 2 core flexible wires is unsafe.

Two core flexible cables shall not be used.

Improper joining of armoured cables & wires.

To economize the cost of jointing of armoured cable, straight – through jointing kits should be used and no other jointing procedure should be followed. Wires should be properly insulated.

Operating hand held electrical tools in the open air in light drizzle.

If a roof cannot be provided over the head by a tarpaulin or by other means. It is better to suspend operation of hand tools till the drizzle stops.

Exposed switches, FDB's Switch-plug-socket units installed in the open without an enclosure or protection from rain, dew, etc. is unsafe.

All boards, Main DB, Sub DB, etc. shall be covered by roof and walls. The smaller units like FDB's, Switch-Plug-Socket boards shall be protected by enclosures.

High earth pit resistance & failure to earth sub boards and FDBs effectively.

The combined resistance of the earth pit should be less than 0.5 ohms. Periodical checking of the earth resistance should be carried on.

Moving live equipment (other than hand equipment and wheel mounted equipment) not provided with trailing cables and flexible leads.

Except trolley mounted and wheel mounted equipment, or hand held equipment with trailing cables, the rest of the equipment's shall not be moved without switching of the control point. Even with trolley and wheel mounted equipment, it is safer to do unless the distance through which the equipment is moved is marginal.

Non – provision of earth continuity conductor for earthing floodlights/halogen lamps, etc. is unsafe.

Three core, double insulated cables shall be used with earth lead correctly connected to the earth terminal at the controlling point.



Failure to provide HRC fuses at the main boards & sub – boards is unsafe.

The distribution boards (main sub & fixed) shall be fixed with standard switch fuse units incorporating HRC fuse.

Failure to observe precautions and safety procedures while doing maintenance work on feeders, switches etc is unsafe.

Safety permits should be obtained, fuses should be removed, and 'MEN ON LINE' boards must be displayed as the case may be.

Unauthorized tapping of power from DB's is unsafe.

Power should be tapped from the sources under our control. A cut – off point and a proper fuse be used separately in our control and unless these conditions are satisfied, power supply shall not be drawn from DB's under our control.

Electrical accidents due to non-availability of Breakers.

ELCBS & RCCBS of proper sensitivity and proper rating must be used to avoid electrical accidents.

Hazards can be eliminated through design, Manufacture, installation & commissioning and maintenance.

Insulation

All cables, panels, fittings, terminals & equipment selected for the purpose of site use / erection / commissioning / operation shall have adequate insulation / shall be adequately insulated to avoid shocks.

Cable

No single insulated cables / bare conductor shall be allowed to use

All cables for hand held machine and machines / panel boards of metallic casings shall be of three core & four-core cable.

Cable size shall be adequate to suit the rated current.

The cables used for U/G shall have 50% more than the normal ratings.

Flexible cables in portable machines are restricted to length of 100 mts.

No jointed flexible cables are allowed to use as trailing cable.

The supports provided for cables shall be adequate to take the total load & not pull the conductors.

All armoured cables & its joints shall ensure its earthing continuity by providing proper clamping.

All the conductors in the cable shall be provided with lugs & clamped properly for its connection in the terminals.



No electrical cables should be laid over the grout, either cable should be buried under ground below 900 MM from FGL, or it should be above the height of obstruction passes through the way, the underground cable shall be protected for mechanical load, by Sturdy pipes.

Earthing

The entire electrical establishment shall be connected to the earth mass when leakages / faulty current can be discharged into the ground.

The following points shall be considered before constructing a Earth pit.

- Resistance of the individual Earth pits shall be less than 5 Ohms
- Resistance of the earthing grid shall be less than 1 Ohms
- Soil treatment shall be done to improve the conductivity of the soil. For this process alternate layers of salt and charcoal shall be filled in the earth pit or any new process shall be deployed to reduce the resistance.

Soil treatment by water. Moisture contents in the soil will increase the conductivity the up to 16% of moisture content. However, moisture content above 16% will not increase the conductivity any further.

- Stream of water flowing over the Earth pit will remove the essential salts for conduction.

Earthing conductors should be capable to resist galvanic corrosion, in the said consideration GI & copper are the best suitable elements.

Minimum size of conductors:

The cross section of the conductors should be capable to withstand not less than the maximum value of current.

Minimum distance from the structures, the earth electrode shall be driven.

2 M away from any structure.

Consideration should be made in a way that maximum power is being consumed within 2 Mtr. Circle of the electrode. Earthing conductors should not cross with any blasting wire fuses. Connections & Terminations, connections and joints should not damage to the electrode and should be visible for inspections. Pipe Electrode shall be of 32 mm dia x 3 Mtrs long. In addition, perforation shall be done all along the electrode.

Transformers should be provided with an individual Neutral Earthing, which doesn't have any electrical contact with the bode earthing of the transformers.

What to be Earthed?

Any conductor accessible to humans in the electrical machinery that is not supposed to conduct electricity should connected to the earth to conduct any unintended current flow in the conductors.

In construction sites the following to be connected

Distributions boards should be earthed on both the sides of the distribution board.



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Body of all the electrical machineries should be connected to the earth. Steel structures supporting any electrical machineries shall be earthed.

Weather Protection

All DBs, panels, switches shall house properly. As such establishment shall have sufficient space inside & should be provided with closing doors / sides secured with cover. These protection enclosures shall be placed at convenient height with adequate supports to avoid tilting.

Housing

Suitable location & area shall be identified. Area shall be fixed with proper entry & sufficient space from wall / sides.

There shall be separate space / cable trench to lay cable.

The floor area shall be free of dirt / oil / dust & accumulation materials.

All electrical establishment & operating lever shall be positioned in such a way that a person / operator can be in easy reach.

The room shall be well ventilated & shall be provided with gates.

The transformer shall be fenced off with proper gate. Caution / signboards are to be displayed related to voltage, hazard. Authorised entry etc.

Unauthorized Entries:

All electrical establishment room shall have a caution board. Establishments shall be placed under the responsibilities of qualified Engineer / Electrician.

12.11 WORK AT NIGHT

The general philosophy on the project is to eliminate where possible, any work that continues into the hours of darkness. This procedure will typically apply to activities such as concrete pours, NDT WORK, test runs and other activities experienced during the construction, commissioning and operations phases of the project.

All construction personnel must wear minimum requirements of PPE as mentioned clause (PPE).

The working zone shall be selected and suitable traffic layout as shown. All points of exit, pathways and muster points shall be clearly illuminated.

Ladder accesses and egress shall be clearly illuminated.

Lighting equipment checked in accordance with the procedure for temporary electrics.

Only authorized vehicles should ply during night time for transportation / earthwork that must be informed to Time Office and sufficient supervisors must be deployed.



The illumination shall be measured prior to the work being carried out by a light meter, calibrated in Lux. Tower lighting shall be sited in a manner that illuminates all parts of the area where the work is taking place. Lighting should be provided in confined spaces. Generators provided shall be checked prior to use to ensure that they meet requirements of the plant and equipment procedure. Lightning poles and other metal poles shall be earthed and the circuit fitted with residual current devices.

Cables employed for the purpose of temporary lighting shall be routed to ensure that they do not present a trip hazard or other obstruction.

12.12 WORK OVER WATER

All construction personnel must wear minimum requirement of PPE as mentioned clause (PPE)

Displayed of warning Signs of Deep Water

Edge protection including guardrails and toe bards etc.

Suitable rescue equipment, and training and instruction in its use.

Rescue Equipment

Lifebuoys with rescue lines should be provided at intervals along the site and positioned conveniently for use in an emergency. Floating grab lines should be attached at intervals or floating plant.

Personnel must wear life jackets, or buoyancy aid equipped with a whistle and lights (during darkness)

All rescue equipment must be checked by a competent person to ensure it is present and in good conditions.

Enough personnel should be made available who are trained in the use of rescue equipment and emergency procedure.

Rescue Boats

On tidal water or fast flowing rivers, a power driven boat should be provided and properly equipped, including lifebuoy with buoyant rope (or) rowing boat may be sufficient in some canals and island waterways.

Swivelling searchlights should be fitted during darkness in the rescue boats.

Standby person continuously manned while working over water.

Competent boatmen, trained first aiders should be made available on this area and not to be used for other purpose keeping platforms and ladders clean and clear of debris, slime and other tripping hazards.

Safety nets to arrest falls where standard working platforms or harnesses cannot be provided.

Safety lines and harnesses to be used in conjunction with temporary ladder access over water.



12.13 HOUSEKEEPING & STORAGE OF MATERIALS

‘HOUSEKEEPING’

It is not just a push-broom effort. It means an orderly arrangement of operating tools, equipment, storage facilities and supplies and not just cleanliness. Housekeeping should be planned at the beginning of the job and carefully supervised until the final hand over. It is a practical method of increasing production, reducing accident and improving employee morale and public relations. Housekeeping should be the concern of all supervisors and engineers in their area of work and not left for the clean-up crew. Housekeeping should be a part of daily routine & clean up a continuous process.

TYPICAL ACCIDENT DUE TO POOR HOUSEKEEPING

The relationship between accidents and poor housekeeping is very close. Too often accident are reported because of:

- Men tripping over loose objects on floor, stairs and platforms.
- Men getting hit by articles falling from overheads
- Men slipping on greasy, wet or dirty floors.

GUIDE LINES FOR HOUSEKEEPING:

- Storage Areas – All materials should be maintained in a neat stockpile with well laid aisle and walkways for ease of access. There shall not be any projections in the walkways.
- A minimum of 1 meter shall be maintained between for the passages.
- Work Areas – Loose materials, scrap, tools, etc. shall not be allowed to be left lying in the working areas specially in the vicinity of ladders, ramps, stairs etc., spills of oil & grease should be removed immediately.
- Protruding nails – Engaging a person for the purpose should retrieve protruding nails from wooden pieces.
- Scrap Yard – Wooden scrap yard should be well away from any gas cutting or welding operations and No smoking shall be strictly ensured.
- Lighting – The whole working area should have adequate illumination.
- Opening in floor – All openings in areas where workmen are liable to work or pass through shall be closed or barricaded with a warning sign “OPENING BELOW”.
- Approach roads – The approach road should be freely accessible all the time so as not to have blocking during emergency.

GOOD HOUSEKEEPING IS AN IMPORTANT ELEMENT OF ACCIDENT PREVENTION. IT SHOULD BE PLANNED AT THE BEGINNING OF THE JOB AND CAREFULLY SUPERVISED UNTIL THE FINAL HAND OVER.

- STORAGE OF MATERIAL
- All the materials should be stacked on the levelled ground.
- Before stacking Heavy Materials stability of the soil, bearing and adjacent to it should be considered.



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- All the materials should be stacked, providing good aisles between them for receiving the materials.
- While stacking materials on the sides of aisles, minimum clearance should be maintained for the crane to move in the aisle.
- While stacking materials on the passage, care should be taken, to avoid protruding of sharp particles.
- While stacking flammable materials or materials coated with flammable coating or containing flammable materials, care should be taken to avoid fire accident.
- While stacking the similar materials as a heap, the height of the stacking should not increase, more than 1.5 Mtrs. If the base dimension is not 4 times of the height and Proper Access is not being provided.
- While stacking pipes, 3 types of stacking should be allowed.
 - Pyramix Stacking
 - Square Stacking
 - Parallel stacking
- Pipe should be stacked, on a level ground to avoid rolling of the pipes, and wedge shaped stoppers should be provided at the end of each layers.
- While stacking pipe, manufacturers recommendations should be considered seriously, for no. of layers allowed.
- Bins shall be formed for every item and all the materials shall be stacked property in the concerned bins for easy, accountability and easy retrieving of the materials.

Stacking materials in the racks:

While stacking materials In racks, heavier materials should be stored at the bottom and the lighter materials should be at the top.

Distance between the racks shall be sufficient for retrieving the materials.

Maximum weight caring capacity of each rack should be displayed on itself.

Ladders shall be provided to retrieve the materials from the top racks.

13.0 CHECK LISTS AND REPORTS:

Various safety Inspection checklist shall be used by the Site Engineer / Supervisors of the respective area periodically. These checklists help in monitoring the work place and bring about a change in the area where attention is necessary.

The following checklist & reports will be used in the site during the course of the work execution.

REPORTS TO BE SENT BY SITE TO HQ EHS DEPARTMENTS:

Site shall send the following reports on the periodically mentioned against each report.

Minutes of Safety Meeting - At least once in a month.



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Safety Statistics	–	Monthly
Analysis of First Aid Cases	-	Monthly
Evaluation of Sub-Contractor	-	Monthly
Compliance of Inspection Report	-	Monthly
EHS Golden Rules implementation status		Monthly
Requirement & Release of materials	-	Quarterly
Immediate information of all incidents.		
Report on checking of PPE		Monthly / Quarterly.

RECORDS TO BE MAINTAINED BY EHSO

First aid register maintained by Time office.

Investigation reports accident register by EHSO.

Unsafe conditions / unsafe acts register by EHSO

Periodical Checklist inspection etc.

The following checklists and reports will be used in the site during the course of work execution:

Sr. No.	Theme	Reference	Remarks
1	EHS RISK ASSESSMENT		
2.	GENERAL EHS INSPECTION CHECKLIST		
3.	SAFETY IN SCAFFOLDING CHECKLIST		
4.	SAFETY WHILE WORKING AT HEIGHT		
5	HOUSEKEEPING CHECKLIST		
6	ELECTRICAL SAFETY INSPECTION CHECKLIST		
7.	REVERSE THE RISK		
8.	PROJECT EHS INSPECTION REPORT		
9.	ELECTRICAL SAFETY INSPECTION REPORT		
10	RCCB TEST REGISTER		
11	P&M INSPECTION REPORT		
12	FORMATION OF PROJECT EHS COMMITTEE		
13	EHS COMMITTEE MEETING		
14	TOOL BOX TALK		
15	EXCAVATION CLEARANCE PERMIT		
16	PERMIT TO WORK ON PLANT MACHINERY AND OTHER POWER DRIVEN EQUIPMENT		
17	PERMIT TO BALSTING OPEATION		
18	PERMIT TO WORK AT HEIGHT		
19	TRAFFIC DIVERSION PERIMIT		
20	CRANES INSPECTION REPORT / GANTRY CRANE INSPECTION CHECKLIST / TOWER		



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	CRANE INSPECTION CHECKLIST		
21	VEHICLE AND EARTHMOVING EQUIPMENT INSPECTION REPORT		
22	RECORDS OF CUSTOMERS SUPPLIED		
23	EHS NORM VIOLATION MEMO		
24	MONTHLY SITE EHS STATISTICS		
25	KEY PERFORMANCE INDICATOR		
26	FIRST AID RECORD REGISTER		
27	ANALYSIS OF FIRST AID CASES		
28	PRELIMINARY ACCIDENT REPORT		
29	INCIDENT INVESTIGATION REPORT		
30	NEAR MISS INVESTIGATION REPORT		
31	CAPA		
32	WORKMEN CAMP INSPECTION REPORT		
33	OFFICE INSPECTION REPORT		
34	HEALTH CHECK UP REGISTER		
35	MEDICAL EXAMINATION RECORD		
36	WASTE MANAGEMENT PLAN		
37	MOCK DRILL PLAN		
38	MOCKDRILL OBSERVATION REPORT		
39	FIRE EXTINGUISHER INSPECTION REGISTER		
40	FIRE DRILL REGISTER		
41	PROFORMA OF SCREENING OF WORKMEN ENGAGED BY CONTRACTOR & SUB CONTRACTOR		

14.0 EMERGENCY RESPONSE PLAN

Objectives

Any emergency occurring within plants carrying out installation / operation / maintenance activities may cause injuries or loss of life or damage to property or disruption inside as well as outside the plant. The emergency in the project site could be as a result of abnormal functioning within the plants or caused by third parties or by natural factors. Considering the activities carried out in the plants and importance of preserving life and property within and outside the site, the Chetak Enterprises Limited Management has set the following as objectives of the Emergency Response Plan.

- Preserving the life, property and environment from the consequences of emergencies arising within the site.
- Systematically coordination of emergency control action to arrest escalation of emergency to evacuate personnel within or outside the site where necessary and to rehabilitate them.
- Restoring normalcy in site operation with minimum loss of time
- To support the injured with early and effective medical aid.

Emergency response plan is prepared for various situation such as:

- Collapse of wall / structures
- Heavy / wind with thunder storm
- Outbreak of fire
- Fire at bitumen storage tank



- Accident at Plants and Road accidents outside the plant
- Damage to overhead power lines / supporting poles of power lines
- Natural calamities
- Epidemic out break
- Dangerous occurrences
- Civil Riots / Terrorists attack
- Espionage
- Strike / Bandh
- Oil / Chemical spills.

Emergency assembly point:

Assembly point is designated place for all workmen to assemble at the prominent location by using shortest possible route, during emergency time. Head count will be done at the assembly point.

All Clear Signal:

Finally, when the emergency has been brought under normal control the main controller will direct the emergency response committee by giving “All Clear Signal” thus employees and those connected with emergency roll call at assembly point, and rescue team would come to know the emergency situation has now come under normal control.

Emergency Response Plan shall be prepared.

15.0 LIST OF JOB SPECIFIC PPE TO BE USED IN THE SITE

Safety / Personnel Protective Equipments (PPE's) does not stop accident, but it can help to lesson their effect. Employers have a duty to eliminate the hazard and or control the risk, so far as is reasonably practicable. PPE therefore represents a last line of defence for the individual.

Adequate no of safety equipment and Personnel Protective Equipment's shall be planned and procured, by safety Engineer, with considering sufficient process time and buffer stock depending up on the conditions. On receiving, the safety and personnel protective equipment safety engineer will inspect the materials for the quality and only approved materials to be taken for use at the project site.

15.1 COLOUR CODE OF SAFETY HELMET TO BE FOLLOWED AT SITE:

WHITE	-	STAFF / VISITORS
BLUE	-	SUPERVISORS & SUB CONTRACTORS
GREEN	-	SAFETY STEWARD
RED	-	ELECTRICIAN
YELLOW	-	ALL WORKMEN

There are many types of PPE from helmets to footwear, each type designed to protect different parts of the body against specific hazards. This chapter explains some of the common types of PPE.



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Typical Matrix is given in **Annexure –A** shall be made project specific. List of jobs specific special PPEs to be used in project shall also be included in the matrix.

16.00 TRAINING:

Project EHS Manager in co-ordination with CEHSM / Had ESH will conduct safety training programs on different topics. Site Engineers, supervisors, attend the program to enhance their technical knowledge with respect to safety and learn how to integrate safety into the work practices.

“Safety in Construction” This is the programme conducted by HQ –EHS department. Site staff members has to be nominated for this programme. This the comprehensive programme of two days duration will organized as per the Training Calendar of Chetak Enterprises Ltd.,

It is compulsory for all staff members to attend this programme at least once as early as possible from the date when they joined in company service.

This section shall give a matrix of applicable training versus category of peoples. Tyypical Matrix is given **Annexure B**.



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Training Package	For all new Employees	Lifting Supervisors Banks men, Operator / riggers	All Engineers and Supervisors	All involved in confined space work activities	All employees including workers	All employees	All employee	All employee
Trainer	EHSO	EHSO	EHSO/P&M	Consultant/EHSM.	EHSO/Site Engrs.	Fire Safety Officer	Fire Safety Officer	Site Engr/EHSO
Basic HSE Induction Course								
Scaffolding Training								
Safe slinging and rigging training								
Job hazard analysis and risk assessment training								
Confined space training								
Fire Fighting training								
Emergency preparedness / evacuation and rescue training								
Tool Box Talks								
Job Specific								



17.0 COMMUNICATION AND REPORTING

a. Cascading Information:

Cascading any EHS messages down the line is vital for the success of any EHS Management System and to ensure that all personnel are aware of EHS issues the following technique shall be adopted.

No	TASK	ACTION BY	COMPLAINACE TARGET	VERIFICATION DOCUMENTS
1	EHS NOTICE BOARD Fix EHS Notice board at Project Office and other such as EHS Notices. Safety Alerts, Posters and incident evaluation etc. and regularly update. Install and maintain EHS performance board showing Safety statistics i.e. days without LTIC etc.	EHSO	Daily Weekly Update	EHS Notice Board
2	PROMOTION Monthly Incentive Select “Safe Man of the Month” on the basis of EHS performance evaluation and award certificate of commendation along with a token gift	PM/EHSO	Monthly	Incentive Scheme Record.

18.0 ANY OTHER INFORMATION RELEVANT TO PROJECT EHD PLAN

SAFETY MEASUREMENT FOR MAJOR PLANT & MACHINERIES

General Mandatory

All P&M major equipments including subcontractors such as graders, tippers, trans mixer, roller, hydra, crane etc. must go through inspection and check once in a month by safety department accompanied by P&M personnel. The fitness sticker signed by a P&M Engineer and SSC shall be pasted on the windscreen near the driver, based on monthly colour code released by safety committee.

Only authorized driver must drive vehicle, Photo pass shall be compulsory for driving the vehicle at site.

Speed limit controller must be fixed to all load carrying vehicles by P&M at the beginning of the job during checking and inspection.

All tipper and material transporting vehicle should be provided with helper

Emergency stop / Pull card switches are must for the plants.

MOBILIZATION OF EQUIPMENTS:

The equipments are deployed after obtaining the ‘Equipment fitness certificate from the P&M Engineer and the EHS Engineer.



18.1 BATCHING PLANT

Transport and erection of the Plant

Unloading of the various components of the plant shall be done as per the guidelines mentioned in the material handling and crane operation.

Cranes and loading equipment having sufficient carrying capacity shall be used.

Riggers under the direct supervision of P&M Engineer shall do unloading and erection of the components of the plant.

Lifting and erection sequence shall be followed as mentioned in the operation and instruction manual of the equipment manufacturer.

Slinging points for lifting the equipment shall be selected as mentioned in the operation and instruction manual of the equipment manufacturer.

Suitable transport vehicle having sufficient loading capacity shall be used for shifting the equipment.

Safety during normal operation of batching plant

The plant to be operated only if all safety devices and safety-related equipment such as removable guards, emergency stops, sound insulation's, suction devices, are in the right position and operative.

The operator shall check the machine / plant, once at least per shift, for externally perceptible damage and defects. Notify the P&M Engineer immediately of any changes (including any deviations from the normal performance in service) If any changes / deviations are found, the plant shall be stopped immediately and necessary repair works to be carried out.

In case of malfunction, stop immediately and safeguard the machine / plant. Have the malfunction immediately cleared.

Starting and stopping procedure, control devices / signals shall be followed according to the manufacturer's guidelines as mentioned in the operating instruction manual.

Before starting /actuating the machine / plant it shall be ensured that nobody is endangered by the starting machine / plant.

No body shall be allowed to step enter in the danger area of skip. The surrounding area shall be cordoned off when the skip is in operation.

All opening and cut out shall be properly covered or adequately guarded.

All wire ropes shall be inspected at regular intervals and replaced if required.

Maintenance and clearing of Malfunction during Work



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Only authorized P&M technicians are allowed to carry any repair, maintenance work, and replacement of parts in the Batching plant.

One and off positions/procedures shall be observed in accordance with the maintenance guidelines as indicated in the manufacturer's instruction manual/handbook.

Work Permit System shall be implemented for all repair and maintenance works carried out in the Batching Plant.

Refer Annexure: "Permit to Work on Plant, Machinery & Other Power Driven Equipment IM20F Rev:00

P&M engineer executing the maintenance work shall obtain the above work permit from the Issuing Authority (P&M In charge) before starting the work. The plant shall be de-energized, fuses shall be removed and kept under the custody of Issuing authority, and a information shall be displayed informing that, maintenance work is under progress"

After completion of the maintenance work the issuing authority shall check for the following points,

Whether the equipments is clear of all the doing the job

All tools and tackles have been removed.

If all the above points are checked and found O.K. the equipment shall be energized and normal operation shall be started.

During replacement, individual parts and large and/or heavy structural components must be carefully attached to lifting appliance and safeguarded in order to avoid a possible source of danger. Only appropriate lifting equipment of lifting appliances with sufficient carrying capacity shall be used. No body should be allowed to stay or work underneath suspended load.

Slinging of loads, signalling to crane operators and the whole lifting operation shall be done under the supervision of authorized P&M Technician.

For any work above body height, use appropriate ladder and/or working platforms. Do not use machine parts as ascending equipment! For maintenance work in larger height use safety device against falling down.

Keep all handles, steps, side rails, platforms, stage, and ladders free form dirt, oil spillage and any other slippery material.

Before cleaning the machine with water or by steam jet (high-pressure cleaners) or other cleansers, cover/glue up all openings into which for safety and/or functional reason water/steam/cleanser must not penetrate. Particularly exposed to danger are electro motors and switch/control boxes.

If the maintenance/repair work requires the dismantling of safety appliances, the re-assembling and checking of these safety appliance must follow immediately after the maintenance and repair work being finished. Only after ensuring the proper functioning of safety devices he plant shall be operated.

Electrical Safety in Batching Plant

HRC fuses with specified current rating shall be used. In case of disorder in the electric energy supply, switch off the machine / plant immediately.



An authorised electrician must only perform any work at the electric appliances or operating material.

Machine and plant parts on which inspection, maintenance and repair are being performed must if so specified be switched voltage free. Check first free switched parts for voltage clearance, then connect to earth and short circuit as well as insulate adjacent part under voltage.

The electric equipment of a machine / plant shall be inspected / checked in regular intervals by an electrician or P&M Engineer with HSE representative. Defects like loose connections and scrunched cables if found shall be repaired immediately.

18.2 HOT MIX PLANT

All personnel must wear minimum personnel protective equipment such as helmet, shoe, glass and etc.

All motor and belt drives should be well protected. No workmen with loose clothing should be allowed. Before starting the plant "Alarm Horn" should be sounded to alert workmen working inside the plant. No smoking zone should be marked and properly highlighted.

Sufficient nos. of fire extinguishers should be provided and workmen should be trained on it.

Emergency shut down switches should be placed in well visible areas and highlighted properly before starting long circulation of bitumen, it has to be ensured that it is hot enough for pumping.

Before starting pump 3-way valve should be heated externally to avoid jamming.

All nozzles should be made free from Bitumen jamming after each days work.

Drier drum burner should be fired when drum is empty as it may cause bending of drum structure. The plant should be cleaned every day and made free of inflammable items like diesel, grease, etc. lying in unwanted places.

Limit switches or safety devices should not be by passed in system.

Conditions of LOAD, CELLS for Hot Bitumen weighing bucket should be inspected every day, failure of which may cause overflow of Hot Bitumen.

Un-authorized persons should not be allowed inside the cabin.

While carrying out any maintenance in plant ensure that permit to work _____ permit taken in advance and the power source is disconnected and under observation of the responsible person.

HAZARDSS OF GAS, DUST, STEAM, SMOKE

Perform welding, burning and grinding work at the machine/plant only if this is explicitly allowed e.g. fire hazard and explosion hazard may occur.

Before welding, burning and grinding clean the machine / plant and its neighbourhood from dust and combustible materials. Cover adjacent machine parts against sparks.

Availability of the fire fighting equipment shall be nearby shall be ensured.



18.3 CRANE OPERATINS

Operator of valid license is permitted to operate the crane.

He should always have his valid license and the certificate of the equipment he operates.

Certified crane only is to be deployed for the job.

Assembling, maintenance and disassembling on the equipment is done as per the manufacturer manual.

All P&M major equipments including subcontractors such as graders, tipper, trans mixer, roller, hydra crane etc. must go through inspection and check once in a month by safety department accompanied by P&M personnel. The fitness sticker signed by a P&M Engineer and SSC shall be pasted on the windscreen near the driver based on monthly colour code released by safety committee.

Overloading shall never be allowed at site.

The operator should ensure the area is good enough for the crane before machine or parking it.

Crane shall be stationed on a firm level ground.

Proper boom angle and radius shall be followed to lift the load. Refer the load chart given in the crane manual or fixed inside the crane cabin.

Cranes should not be parked near the edges of the pit or excavations.

Limit switch of cranes should be tested frequently for ensuring its proper functioning.

The swinging area of the crane body is cordoned. The Crane helper ensures no trespassers enter in this vicinity. The operator should have a clear view of the operation throughout the hoisting period.

A trained signaller should give the standard signal for crane operation.

The banks man should be always at the visibility of the crane operator. If the operation is such that the banks man has to stand at an obscure location then more banks man shall be posted to have an effective communication.

A competent rigging gang does material handling.

Clear passages should be left for easy handling and transportation structures.

All persons shall stand clear when a crane is sorting or shifting materials.

Monthly safety inspection is carried out and recorded.

18.4 DIESEL GENERATOR SET



D.G. Set is installed as per the electrical regulations of the country.

Fuel to be stored away from the D.G. set and the area to be cordoned.

Foam type fire extinguishers of 9 litre capacity 2 nos. are installed.

All rotating particles of the equipment shall be adequately guarded.

Fuelling should be avoided while D.G. is in operation.

All cables shall be double insulated / armoured.

Routing of cables shall be proper.

Proper earthing shall be provided. Earth resistance shall preferably below 1 ohm.

Only authorised personnel shall be allowed to operate the generator.

Smoking shall be strictly prohibited in the area around the generator and fuel storage area.

The designated operator shall use earmuff in addition to other common PPEs.

18.5 HYDRAULIC EXCAVATORS

Operator holding valid license as per the law of the land is engaged.

He should always have his valid license and the certificate of the equipment he operates.

No person should enter the radius of action of Earth moving equipment when in operation.

No earth moving equipment should be started up until all workers are away from the operating radius. The helper should ensure it.

All P&M major equipments including subcontractors such as graders, tipper, Transit mixer, roller, hydra crane etc. must go through inspection and check once in a month by safety department accompanied by P&M personnel. The fitness sticker signed by a P&M Engineer and SSC shall be pasted on the windscreen near the driver based on monthly colour code released by safety committee.

The cab of Earth moving equipment should be kept at least 1m (3 ft 3 in) from a face being excavated.

Earth moving equipment should not travel on bridges, viaducts, embankments etc. unless it has been found safe for it to do so.

Adequate precautions should be taken to prevent Earth moving equipment being operated in dangerous proximity to live electrical conductors.

On Earth moving equipment motors, brakes, steering gear, chassis, blades, blade holders, tracks, wire ropes, sheaves, hydraulics mechanisms, transmission, bolts, and other parts on which safety depends should be inspected daily.

Dusty haulage roads and tracks should be watered so as to maintain good visibility.

Earth moving equipment should not be left on a slope with the engine running.



No adjustments maintenance work or repairs should be made on equipment in motion.

Deck plates and steps should be kept free from oil, grease, mud or other slippery substances.

16.6 DOZERS.

Operator of valid license is permitted to operate the equipment.

He should always have his valid license and the certificate of the equipment he operate.

Before leaving a bulldozer the operator shall apply the brakes, Lower the blade, Put the shift lever in neutral, at the close of work dozers should be left on level ground.

When a dozer is moving uphill the blade should be kept low.

Dozer blades should not be used a brakes except in an emergency.

All P&M major equipments including subcontractors such as graders, tipper, transit mixer, hydra, roller etc. must go through inspection and check once in a month by safety department accompanied by P&M personnel. The fitness stickers signed by a P&M Engineer and SSC shall be pasted on the windscreen near the driver based on monthly colour code released by safety committee.

18.7 TRANSIT MIXER

Operator of valid license is permitted to operate the equipment.

He should always have his valid license and the certificate of the equipment he operates.

A driver shall follow the indications given by traffic signs. (e.g. speed limit, sharp turn etc.)

Reverse Horn to be provided and frequently checked for its proper functioning.

It shall also be equipped with first aid kit and a fire extinguisher.

Before sending the workmen inside the drum for cleaning the rotation of the drum shall be arrested. Drum cleaning should be done under the supervision of the P&M Engineer. Permit to work on Plant, Machinery and Other power driven equipment permit system is applicable.

While moving in the public roads the driver shall comply with all local traffic regulations.

No persons shall be allowed to stand between the transit mixer and concrete pump.

Use clear and concise hand signals for reversing, stopping, unloading concrete and other operations.

While working near excavated pits and trenches the transit mixer shall be stopped well ahead of the edge of the trench pit.

All P&M major equipments including subcontractors such as graders, tippers, trans mixer, roller, hydra, crane etc. must go through inspection and check once in a month by safety department accompanied by P&M personnel. The fitness sticker signed by P&M Engineer and SSC shall be pasted on the windscreen near the driver based on monthly colour code released by safety committee.



18.8 TRAILERS

Operator of valid license is permitted to operate the equipment

He should always have his valid license and the certificate of equipment he operates.

A driver shall follow the indications given by traffic signs (e.g. speed limit, sharp turn etc.)

Reverse Horn to be provided and frequently checked for its proper functioning.

While moving in the public roads the driver shall comply with all local traffic regulations.

In case of loading or transporting of long materials such as built up columns or MS rods the projection beyond the sides and end of the bed shall be kept minimum. Suitable precautionary measures such as flags etc. shall be provided. Materials loaded should be lashed before starting the trailer.

All P&M major equipments including subcontractors such as graders, tippers, trans mixer, roller, hydra, crane etc. must go through inspection and check once in a month by safety department accompanied by P&M personnel. The fitness sticker signed by P&M Engineer and SSC shall be pasted on the windscreen near the driver based on monthly colour code released by safety committee.

19.9 INSTALLATION OF MACHINE (BOOM PLACER)

Determine where the boom placer to be installed and prepare the ground accordingly.

Walk along the onsite approach route before driving on it.

Only authorized personnel shall operate the boom placer.

A trained signalman shall give the signals. He should wear the fluorescent jacket.

Agree on clear cut signals with the assistant.

Have the road blocked off if necessary.

Ensure the ground stability

Keep enough clearance for complete extension of the out rigger.

Always place four numbers of square timbers underneath the out riggers

Keep enough clearance form building, pits slopes etc.

The force transmitted into the ground by each out rigger spread conically ground at the angle 45 degree.

Thump rule is = for filled ground = 2 x pit depth

For natural ground = 1 x pit depth

Keep enough clearance from over head lines i.e. 6 mtrs.



Attach the earthing cable to the placing boom if it is near the transmission line an extra precautionary measure.

Always apply the parking break and place the wooden wedges beneath the wheels.

Never attach extra extension to the placing boom.

Avoid knocking the placing boom against other objects.

Avoid giving a violent jerk to the placing boom to remove an obstruction.

18.10 CLEANING OF DELIVERY LINE AND PUMP.

Cleaning is done at designated locations.

The delivery line to be cleaned by reverse pumping or water flushing.

For reverse pumping always switch off the agitator.

For compressed air cleaning always use trap basket, pipe head and cleaning ball.

Direct only the water jet, not the nozzle into the hopper, in the valve, into the water box or other moving machine component.

Always switch off the machine while cleaning the agitator.

Never remove the grating cover in the feeding hopper of the concrete pump.

Never set foot on the grating

Never use compressed air for human body cleaning

Never insert hand or any part of body in pump agitator gate for cleaning or any other purposes while machine is in operational mode.

18.11 SAFE USAGE & MAINTENANCE OF TIPPER

While loading earth or material to a tipper the load should be well distributed on the tipper body & while unloading it should be kept on a level ground.

Tipper should never be used for shifting manpower from one place to another.

Before travelling it should be ensured that the tipping lever is fully engaged. No layman except trained helper should be allowed inside the cabin.

Wheel bolts, brakes, emergency brakes should be checked regularly.

Reverse horn & light should be fitted.

Before starting the machine ensure the surrounding area are clear.



While working under the fully lifted tipping body it should be properly supported.

Wheel should be jammed to prevent rolling of the machine.

Unauthorized person should not get inside the cabin

No personnel should be in top of truck for removal of tarpaulin, rope tying or any activities when the vehicle is on motion.

Personnel should remain clear of raised truck dump bodies to prevent injury in the event of hydraulic lift failure.

All trucks should be well marked with flashing amber lights and flags.

All truck should be equipped with a small fire extinguisher a first aid kit and a reflector or flare

All P&M major equipments including subcontractors such as graders, tippers, trans mixer, roller, hydra, crane etc. must go through inspection and check once in a month by safety department accompanied by P&M personnel. The fitness sticker signed by P&M Engineer and SSC shall be pasted on the windscreen near the driver based on monthly colour code released by safety committee.

18.12 SAFE USAGE & MAINTENANCE OF MOTOR GRADER

Examine the land and kind of soil at work site.

Inspect leakage in fuel, lubricant & hydraulic systems,. Also check tyre inflation & damaged parts.

Don't leave any parts or tools lying around.

Check that all control levers are in neutral position

All P&M major equipments including subcontractors such as graders, tippers, trans mixer, roller, hydra, crane etc. must go through inspection and check once in a month by safety department accompanied by P&M personnel. The fitness sticker signed by P&M Engineer and SSC shall be pasted on the windscreen near the driver based on monthly colour code released by safety committee.

During Operation:

Avoid

Speeding

Sudden Braking

Sudden turning

Don't allow unauthorized persons in the work area

When leaving machine ensure Engine is switched off, Hand brake is on

Gearshift lever is locked, Blade & scar fier is lowered

While working on river embankments keep sufficient distance from the edge.



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Check the load limit of Bridges before crossing

Don't shift lever in a neutral or declutch while going down slope.

While Marching on road from one site to another place, ensure the blade is kept in diagonal position.

Indication lights should be switched on at right.

Site Maintenance:

Don't start engine inside closed workshop premises.

Ignition key should be removed.

Machine wheel should be properly jammed while working

Blade should rest on ground or should be properly supported.

18.13 POCLAIN & W-20 LOADER

Before starting operations, place must be properly observed (obstructions / overhead power lines / marks for underground cabling)

For poclain swing area should be free from obstructions.

Poclain should be placed horizontally while digging.

Don't use poclain as lifting equipment or loader for shifting materials

Pocalin boom should not be used for pushing or sweeping materials.

While idling loaded bucket should be rested on ground

After stopping m/c release all hydraulic pressure in system.

Workmen should not be carried in W-20 buckets.

All P&M major equipments including subcontractors such as graders, tippers, trans mixer, roller, hydra, crane etc. must go through inspection and check once in a month by safety department accompanied by P&M personnel. The fitness sticker signed by P&M Engineer and SSC shall be pasted on the windscreen near the driver based on monthly colour code released by safety committee.

Site Maintenance:

Before removing any hose or working on hydraulic system air pressure should be released from pressurized hydraulic tank of 90CK-III & W-20 loader.

Diesel soaked cotton waste/cloth should not be left on exhaust manifold / silencer.

While transporting 90 CK on road lock should be inserted.



18.14 PAVER

Safety instructions shall be followed according to the manufacturer's guidelines as mentioned in the operating instruction manual.

Fire extinguisher shall be provided operator's driving license must keep while operating.

While working near paver where workmanship less than 20, flagman shall be kept for policing or more than 20 safety steward shall be kept for continuous monitoring to identify and removal of unsafe acts and conditions.

All Lights should be checked for working conditions.

A red flag shall be tied top side of machine in both sides.

18.15 ROLLER

Safety instruction shall be followed according to the manufacturer's guidelines as mentioned in the operating instruction manual.

All Lights ;should be checked for working conditions.

Reverse horn, all gauges must be checked for working conditions.

A red flag shall tied in the side of the machine.

Roller should not operate beyond 500mm from the edge of the high embankment. Proper guidance shall be provided to the operator by fixing flags /pegs.

Roller should not vibrate while crossing the bridge.



चिपळूण नगर परिषद, चिपळूण

२०१८-१९

वृक्ष संवर्धन समिती

विषय क्रमांक २ :- कार्यकारी अभियंता राष्ट्रीय महामार्ग विभाग रत्नागिरी यांचे दिनांक ०८/०३/२०१८ चे पत्राप्रमाणे राष्ट्रीय महामार्गाचे चौपदरीकरणाचे काम चालू असतांना नगर परिषद हद्दीतील रस्त्यांच्या कडेला असणारी रिपोर्टमध्ये नमुद केलेली झाडे तोडून मिळणेकामी आलेल्या रिपोर्टवर योग्य तो निर्णय घेणे

दिनांक :- ०४/०४/२०१८

ठराव क्रमांक ४ :- काम जाहिर झाले. महिला व बालकल्याण उद्याने पर्यवेक्षक यांचा रिपोर्ट, लेखापाल यांचा आर्थिक तरतुदी बाबतचा अहवाल व सहाय्यक अंतर्गत लेखापरिक्षक यांचा अभिप्राय व त्यावरील मुख्याधिकारी यांची शिफारस वाचण्यात आली.

कार्यकारी अभियंता राष्ट्रीय महामार्ग विभाग रत्नागिरी यांचे दिनांक ०८/०३/२०१८ चे पत्राप्रमाणे राष्ट्रीय महामार्गाचे चौपदरीकरणाचे काम चालू असतांना नगर परिषद हद्दीतील रस्त्यांच्या कडेला असणारी रिपोर्टमध्ये नमुद केलेली झाडे तोडून मिळणेकामी आलेल्या रिपोर्टवर सभेमध्ये सविस्तर चर्चा करून मुंबई गोवा राष्ट्रीय महामार्गाची चौपदरी करणाचे काम चालू असून सदरचा मार्ग हा चिपळूण नगर परिषदेच्या हद्दीतून जात असल्यामुळे रस्त्याच्या कडेला असणारी झाडे खाली नमुद केलेल्या जमिन मालकाच्या मालकीच्या जमीनीमधील झाडे तोडण्यास ही समिती मंजूरी देत आहे. तसेच अर्जदार यांचे अर्जाप्रमाणे झाडे तोडली जात आहेत की नाही आणि नियमाप्रमाणे नविन झाडाची लागवड केली जात आहे की नाही याची खात्री करण्यात यावी व नियमाप्रमाणे झाडे लावण्यात यावी. अर्जात नमुद केल्याप्रमाणे इतर ठिकाणची झाडे तोडल्यास व मालकी हक्काचा वाद निर्माण झाल्यास त्याची सर्वस्वी जबाबदारी अर्जदार कार्यकारी अभियंता राष्ट्रीय महामार्ग विभाग रत्नागिरी यांची राहिल असे सर्वानुमते ठरले.

येणे प्रमाणे ठराव सर्वानुमते मंजूर.

सुचक :- सौ. वर्षा सं. जागुष्टे

अनुमोदक :- सौ. शिवानी म. पवार

सभापती
वृक्ष संवर्धन समिती
चिपळूण नगर परिषद

अ.क्र.	जमिन मालकाचे नांव	झांडाची संख्या	सर्वे नं.
१	इकबाल इ.कुडंलीक व २	सरकारी झाडे २	९४ अ१/८
२	राय देवासीया	सरकारी झाडे ४	९४ अ१/९
३	चंद्रकांत बा भोजने	खाजगी झाडे १	९४ क
४	इसाक श वांगडे	सरकार झाडे ३	९४/३
५	इसाक श वांगडे	सरकार झाडे २	९४ अ/६/१
६	पांडुरंग का.शिंदे	खाजगी झाडे २	८७ अ१/४
७	विष्वनाथ श्रीराम चितळे व ६	खाजगी झाडे १	८७/१/३
८	सुभाष शांताराम गुजराती व ७	सरकारी झाडे ३	९६अ/१
९	शोभना कृ.चव्हाण	खाजगी झाडे ५	९६ब
१०	मे.अजय कन्स्ट्रक्शन तर्फे बशीर इ हमदूले व २	सरकारी झाडे २	९६क
११		खाजगी झाडे १	१०५अ१/५
१२		सरकारी झाडे २	१०५अ/१/६
१३	महाराष्ट्र गृहनिर्माण व क्षेत्रविकास प्राधिकरण	सरकारी झाडे ३	१०६अ/३
१४	एम शशीहर नंबीयार	खाजगी झाडे २	११८ड
१५		खाजगी झाडे १	११७अ/३अ/५
१६		खाजगी झाडे १	११७ब
१७		सरकारी झाडे ७	११७ब
१८	तुलसी पार्क सहकारी गृहनिर्माण संस्था	खाजगी झाडे १	१२०अ१ब
१९		खाजगी झाडे ६	१२०अ/१अ/३
२०		सरकारी झाडे ३	१२०अ/१अ/३
२१	श्रीराम वि रेडीज	खाजगी झाडे ३	१२०अ/१अ/७
२२	सुषमा सु खेडेकर	सरकारी झाडे १	१२२अ१/८
२३	माधव ल चितळे	सरकारी झाडे २	१२२अ१/७
२४	मुबीन म कडवईकर	सरकारी झाडे ३	१२२अ/१/३
२५	बिंदू ग पांचाळ	खाजगी झाडे १	१२२अ३
२६	उल्हास धों पेंढारी	खाजगी झाडे २	१२९अ१अ/५/५
२७		सरकारी झाडे ४	१२९अ१अ/५/५
२८		खाजगी झाडे २	१२९अ१अ/
२९		सरकारी झाडे ३	१२९अ१अ/
३०	सुदेश सु गद्रे	सरकारी झाडे १	१२९अ१अ२अ/७
३१	हाफिजा शेख इ राजीवटे	खाजगी झाडे १	१२४अ१२/१अ
३२	नवकोकण एज्यु.सोसायटी	खाजगी झाडे ३	१२४अ/६ब
३३		सरकारी झाडे २	१२४अ/६ब
३४		सरकारी झाडे १	१२४अ/७
३५		खाजगी झाडे १	१२४अ/९

३६		सरकारी झाडे ४	१२४अ/९
३७		सरकारी झाडे ८	१२४अ/८
३८		खाजगी झाडे २	१२४अ१०/१
३९		सरकारी झाडे १	१२४अ१०/१
४०		खाजगी झाडे १	१२४ब
४१	मुस्ताक इ.बेबल	खाजगी झाडे १	१२४अ१०/३अ
४२		खाजगी झाडे ४	१२७अ२अ
४३		खाजगी झाडे २	१२७अ२
४४		सरकारी झाडे १	१२७अ/२
४५	सुमती गो शेठ	सरकारी झाडे १	१०८क/१
४६	मधुकर ग जोग	सरकारी झाडे १	६२२२
४७		खाजगी झाडे १	६२२४
४८	प्रशांत नि.जोशी	सरकारी झाडे १	६२६०
४९	शुभदा निशिकांत जोशी	खाजगी झाडे २	६२६१
५०		सरकारी झाडे २	६२६१
५१	संजय कृ तांबडे	खाजगी झाडे १	६२६१/११
५२		सरकारी झाडे १	६२६१/११
५३		सरकारी झाडे २	६२६१/१२
५४	लीलाबाई शंकर मोडक	सरकारी झाडे १	६५७६
५५	शुभदा म जोशी	खाजगी झाडे ४	६५७७पै
५६		सरकारी झाडे ८	६५७७पै
५७	माधवी म कानडे	खाजगी झाडे २	६५७८
५८		सरकारी झाडे १	६५७८
५९	महाराष्ट्र शासन डेप्यटी इंजीनीअर	खाजगी झाडे ११	६५७९पै
६०		सरकारी झाडे ३	६५७९ पै
६१	आदिती अशोक तांबे	सरकारी झाडे १	६५९० पै
६२	भरत व कामत	सरकारी झाडे १	६५९३
६३	प्रताप शं शिंदे व ५	खाजगी झाडे १	६५९९पै
६४		सरकारी झाडे ३	६५९९ पै
६५	सखाराम अ साळवी	खाजगी झाडे १	६६०३
६६		सरकारी झाडे २	६६०३
६७	मिलीद श्री.तांबे	खाजगी झाडे १	६६१६
६८	विजय बा ओसवाल	खाजगी झाडे ६	६६१७अ
६९	विलास र मोरे	खाजगी झाडे ६	६६१७ब
७०	तुकाराम श्री.पाकळे	खाजगी झाडे ७	६६१८
७१		सरकारी झाडे १	६६१८
७२	चिपळूण नगर परिषद	खाजगी झाडे ३	६६२०

७३		सरकारी झाडे १	६६२०
७४	रश्मी पां.रेडीज	खाजगी झाडे १	६६२१अ
७५	विष्णू द निमकर	खाजगी झाडे ६	६६२१ब
७६	संजय व कोकाटे	खाजगी झाडे १	६६२७/९
७७	प्रकाश ह नलावडे	खाजगी झाडे १	६६२९/२
७८	चेअरमन परशुराम एज्यु सोसा.	खाजगी झाडे ६	६७०७अ
७९	स्मशानभूमी सरकार	सरकारी झाडे ४	६७७३
८०	नारायण वि घेवडेकर	खाजगी झाडे १	६७७५
८१		सरकारी झाडे ५	६७७५
८२	शिवाजीनगर एसटी स्टॅड	सरकारी झाडे ३	६७९०
८३	सविता सु गद्रे	सरकारी झाडे ४९	६९२५अ
८४	रोझी डेव्हलपर्स	सरकारी झाडे १	६९२९
८५	मधुकर भा जाधव	सरकारी झाडे २	७०२२
८६	रोझी डेव्हलपर्स	सरकारी झाडे १	६९३२
८७		सरकारी झाडे ३	६९३५
८८	मधुकर भा जाधव	सरकारी झाडे १	६९३६अ
८९		सरकारी झाडे ३	६९३६अ
९०	सावित्रीबाई ग जाधव	सरकारी झाडे १	७०२९
९१	रमाकांत रामा सकपाळ	खाजगी झाडे १	७०३२ब
९२	अनुराधा बा पाथरे	खाजगी झाडे ६	७१६५ अ
९३		सरकारी झाडे ९	७१६५अ
९४	ज्योती प्रकाश भिंगाडे व ४	खाजगी झाडे ३	७१६५ब
९५		सरकारी झाडे ३	७१६५ब
९६	रूपाली रमेश कदम	सरकारी झाडे ७	७१६५क
९७	जगन्नाथ रा बापट	खाजगी झाडे २	७१८५अ
९८	राजाराम भा कानडे	सरकारी झाडे १	७१८७
९९	सरोज शं नेणे	सरकारी झाडे ३	७१८८
१००	लीलाबाई शंकर मोडक १३	सरकारी झाडे २	७२७३
१०१	महाराष्ट्र शासन कार्यकारी अभियंता महाराष्ट्र राज्य विद्युत मंडळ	खाजगी झाडे २	७३०५
१०२		सरकारी झाडे १	७३०५
१०३	सिताराम शि.आंबे	खाजगी झाडे १	७७३८
१०४		सरकारी झाडे ६	७७३८
१०५	सुहास अ मोरे	सरकारी झाडे १	७७३९अ
१०६	समीर शां ताम्हाणे	खाजगी झाडे ५	८१८९
१०७		सरकारी झाडे २	८१८९
१०८	अभिजीत श्री सुर्वे	खाजगी झाडे १	८१९५

१०९		सरकारी झाडे ३	८१९५
११०	विणा विजय ओसवाल	खाजगी झाडे १३	७७चा१९चा३चा१
१११	सुनिल दा चितळे	खाजगी झाडे ७	७७१९चा१
११२		खाजगी झाडे ४	६५९७
११३		सरकारी झाडे २	६५९७
११४	सुरेश भा सावंत	सरकारी झाडे ३	७०३९अ/२
११५		खाजगी झाडे २	६२२०/१
११६	अनिल दा चितळे	सरकारी झाडे ४	७७१८पै

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेज झाडेतोड क्र.चीपडरीकरण/१३/१७-१८.
चिपळुण दिनांक. ३०/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल सावर्डे यांचा अहवाल क्रमांक अ/हायवे/ LTR/ १० दिनांक २०/०९/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजर केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानून दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवून यादीतील मनाई दक्षाकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५).महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतूदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जोपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
आगवे	सौबतच्या यादिप्रमाणे	जांभुळ	२७	
		आंबा	६३	
		किंजळ	१४८	
		ऐन	९८	
		खैर	१९०	
		साग	२५	
		एकुण	५५१	



वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल सावर्डे यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.
प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रॅज झाडेतोड क्र.चौपदरीकरण/०९/१७-१८.
चिपळुण दिनांक . ३०/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल सावर्डे यांचा अहवाल क्रमांक अ/हायवे/ LTR/ ९ दिनांक २०/०९/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजर केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानुन दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवुन यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानुन खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५). महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतुदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जोपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
कासार वाडी	सोबतच्या यादिप्रमाणे	आंबा	२५	
		जामुळ	४१	
		किंजळ	४४	
		साग	२४	
		ऐन	१०	
		खैर	९८	
		एकुण	२४२	



(Signature)
वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल सावर्डे यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.
प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडेतोड क्र.चौपदरीकरण/११/१७-१८.

चिपळुण दिनांक. ३०/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल सावर्डे यांचा अहवाल क्रमांक अ/हायवे/ LTR/ १० दिनांक २०/०९/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे सदर्म क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजर केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानून दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेले कामाची निकड व तातडीची गरज विचारात घेवून यादीतील मनाई वृक्षाकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५) महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतूदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली रथानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जांघासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
कोंडमळा	सौवतच्या यादिप्रमाणे	ऐन	५०५	
		किंजळ	१७५	
		आंबा	७८	
		जामुळ	५८	
		खैर	३२८	
		साग	२१४	
		एकुण	१३५८	



वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल सावर्डे यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.
प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडे तोड क्र. चौपदरीकरण/१०/१७-१८.

चिपळुण दिनांक. ३०/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल सावर्डे यांचा अहवाल क्रमांक अ/हायवे/ LTR/ १० दिनांक २०/०९/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे घ मुल्यांकनाचे वेळी हजर केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानुन दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवुन यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५). महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतूदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जाँपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या काळावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
सावर्डे	साँबतच्या यादिप्रमाणे	आंबा	५९	
		जामुळ	४३	
		साग	१०१	
		ऐन	२१३	
		किंजळ	२८	
		खैर	६०	
		एकुण	५०४	



[Signature]
वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल सावर्डे यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.

प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडेतोड क्र.चौपदरीकरण/०८/१७-१८.
चिपळुण दिनांक. २७/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल सावर्डे यांचा अहवाल क्रमांक अ/हायवे/ LTR/ ०८ दिनांक २२/०९/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
२).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजर केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानून दिलेली आहे.
३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवून यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
५). महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतूदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जाँपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
खेरशेत	सोंबतच्या यादिप्रमाणे	आंबा	३०	
		जांभुळ	०९	
		साग	१०४	
		ऐन	१४३	
		खैर	१३२	
		किजळ	२४	
		एकुण	४४२	



वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग-रत्नागिरी.

प्रतिलिपी :- वनपाल सावर्डे यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.
प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडे तोड क्र. वीपदरीकरण/१२/१७-१८.

चिपळुण दिनांक. २७/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल सावर्डे यांचा अहवाल क्रमांक अ/हायवे/ LTR/ १२ दिनांक २५/०९/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजार केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानून दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवून यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५). महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतूदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जोंपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
असुर्डे	सौवतच्या यादिप्रमाणे	ऐन	६३०	
		किंजळ	१६९	
		आंबा	८०	
		जांभुळ	१०	
		बिवळा	०१	
		खैर	५२२	
		साग	०६	
		एकुण	१४१८	



वृक्ष अधिकारी तथा
 परिक्षेत्र वन अधिकारी
 चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल सावर्डे यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.

प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडेतोड क्र.चौपदरीकरण/०७/१७-१८.
चिपळुण दिनांक. २७/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल चिपळुण यांचा अहवाल क्रमांक अ/हायवे/ LTR/ ०७ दिनांक २४/१०/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजार केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानुन दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवुन यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५) .महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतूदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जोंपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
कामथे	सर्वोतच्या यादिप्रमाणे	आंबा	११२	
		जांभुळ	२२	
		ऐन	३१४	
		किजळ	०६	
		खैर	३४०	
		साग	२५७	
		एकुण	१०५१	



वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

✓ प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल चिपळुण यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद

केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.

प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडेतोड क्र.चौपदरीकरण/०६/१७-१८.
चिपळुण दिनांक. २७/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल चिपळुण यांचा अहवाल क्रमांक अ/हायवे/ LTR/ ०६ दिनांक २४/१०/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजर केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राहय मानुन दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवुन यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राहय मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५). महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतूदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जाँपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
कापसाळ	सौबतच्या यादिप्रमाणे	साग	१३४	
		खेर	१११	
		ऐन	५१	
		किजळ	०२	
		आंबा	७१	
		जांभुळ	४८	
		एकुण	४१७	



वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

✓ प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल चिपळुण यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.

प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडेतोड क्र.चौपदरीकरण/०५/१७-१८.

चिपळुण दिनांक. २७/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल चिपळुण यांचा अहवाल क्रमांक अ/हायवे/ LTR/ ०५ दिनांक २४/१०/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे सदर्थ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजार केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानुन दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवुन यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५).महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतुदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जाँपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
पेढे	सौबतच्या यादिप्रमाणे	साग	१३४	
		खैर	६७	
		आंबा	३५	
		जांभुळ	०२	
		ऐन	५०	
		किंजळ	१४	
		एकुण	३०२	

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल चिपळुण यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.

प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.



वृक्ष अधिकारी तथा
 परिक्षेत्र वन अधिकारी
 चिपळुण

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडेतोड क्र.चौपदरीकरण/०४/१७-१८.
चिपळुण दिनांक. २७/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल चिपळुण यांचा अहवाल क्रमांक अ/हायवे/ LTN/ ०४ दिनांक २४/१०/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजर केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानुन दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवुन यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५).महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतूदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जोंपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
वालोपे	सौबतच्या यादिप्रमाणे	साग	५९	
		खैर	५३	
		आंबा	५२	
		जांभुळ	०२	
		ऐन	४३	
		किंजळ	०४	
		एकुण	२१३	



(Signature)
वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल चिपळुण यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.

प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडेतोड क्र.चीपदरीकरण/०३/१७-१८.

चिपळुण दिनांक. २७/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल चिपळुण यांचा अहवाल क्रमांक अ/हायवे/ LTR/ ०३ दिनांक २४/१०/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे सदर्थ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजर केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानून दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवुन यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५). महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतुदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जोपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
पेढे पशुराम	सौबतच्या यादिप्रमाणे	साग	१७५	
		खैर	८७	
		ऐन	१५	
		किजळ	२९	
		आंबा	०६	
		जांभुळ	०२	
		एकुण	३१४	



(Signature)
वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल चिपळुण यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.

प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडेतोड क्र.चौपदरीकरण/०२/१७-१८.

चिपळुण दिनांक. २७/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल चिपळुण यांचा अहवाल क्रमांक अ/हायवे/ LTR/ ०२ दिनांक २४/१०/२०१७.

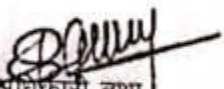
मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन राहून परवानगी देण्यात येत आहे.

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजर केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानून दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवून यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
- ४).खाजगी क्षेत्र संबंधित विभागाने संपादित केले आहे असे ग्राह्य मानून खाजगी क्षेत्रावरील झाडेतोडीस परवाना देणेत येत असून संपादन प्रक्रियाबाबत कोणत्याही हरकती तक्रारी आलेस त्यांची जबाबदारी वनविभागाची राहणार नाही.
- ५). महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतूदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जाँपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
कळंवस्ते	सौबतच्या यादिप्रमाणे	साग	२८	
		खैर	३९	
		जांभुळ	०३	
		ऐन	२९	
		किंजळ	०१	
		--	---	
		एकुण	१००	




वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल चिपळुण यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.

प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

वृक्ष अधिकारी तथा परिक्षेत्र वन अधिकारी चिपळुण यांचे कार्यालय

रेंज झाडेतोड क्र.चौपदरीकरण/०१/१७-१८.
चिपळुण दिनांक. २७/१०/२०१७.

आदेश :-

- संदर्भ :- १. महाराष्ट्र झाडे तोडण्याबाबत अधिनियम (विनियमन) १९६४ सुधारणा १९८९ कलम ३ .
२. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांचेकडील अर्ज दिनांक १२/०९/२०१७.
३. वनपाल चिपळुण यांचा अहवाल क्रमांक अ/हायवे/ LTR/ ०१ दिनांक २४/१०/२०१७.

मा.कार्यकारी अभियंता रत्नागिरी यांचे संदर्भ क्र.२ चे पत्राप्रमाणे महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९कलम ३ (ब) अन्वये यादीत वर्णन केलेले झाड/झाडे तोडण्यास पुढील शर्तीचे अधिन

शर्ती :-

- १). या परवानगी नुसार झाड/झाडे तोडण्यामुळे कोणत्याही व्यक्तीच्या मालमत्तेची झालेली कोणत्याही प्रकारची हानी किंवा नुकसान भरपाई भरण्यास उक्त कार्यालय जबाबदार राहील.
- २).सदरची वृक्षतोड परवानगी मा.कार्यकारी अभियंता ,राष्ट्रीय महामार्ग रत्नागिरी यांनी झाडतोड परवाना मागणी केलेप्रमाणे व मुल्यांकनाचे वेळी हजार केलेल्या खातेदाराची खाजगी व सरकारी झाडांची ग्राह्य मानुन दिलेली आहे.
- ३).राष्ट्रीय महामार्ग क्र.६६ चे रुंदीकरणाचे काम शिघ्रतेने करणेचे असलेने कामाची निकड व तातडीची गरज विचारात घेवुन यादीतील मनाई वृक्षांकरिता तोड परवाना देणेत आलेला आहे.
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- ५).महाराष्ट्र झाडे तोडण्याबाबत (विनियमन) अधिनियम १९६४ सुधारणा कायदा १९८९ कलम ३ (ब) मधील तरतुदीनुसार वृक्ष अधिकारी चिपळुण निर्देश देईल त्याप्रमाणे तोडीस परवानगी मिळालेले झाडांच्या बदली स्थानिक प्रजातीची झाडे सन २०१८ चे लागवड हंगामात करणेची आहे.व त्याची जोपासना करणेची आहे.तसे हमीपत्र देवून त्याचे पालन करणे बंधनकारक राहील.
- ६).ही परवानगी ज्या तारखेपासून देणेत आली आहे त्या तारखेपासून तीस दिवसाच्या कालावधीसाठी वैध राहील.

गावाचे नाव व तालुका	एकुण बाधित सर्व्हे क्रमांक	तोडीस परवानगी दिलेली झाडे		शेरा
		जात	संख्या	
कामथे खुर्द	सौबतच्या यादिप्रमाणे	आंबा	१२५	
		जांभुळ	२६	
		ऐन	२८४	
		किजळ	४२१	
		खैर	२८७	
		साग	५५	
		एकुण	११९८	



[Signature]
वृक्ष अधिकारी तथा
परिक्षेत्र वन अधिकारी
चिपळुण

प्रति,

मा. कार्यकारी अभियंता ,राष्ट्रीय महामार्ग विभाग रत्नागिरी.

प्रतिलिपी :- वनपाल चिपळुण यांना माहितीसाठी व आवश्यक त्या कार्यवाहीसाठी रवाना.सदरच्या आदेशात नमुद

केलेल्या पर्यायी झाडांची लागवड वेळीच पूर्ण होईल घ्यावी व नोंद आपलेकडील रजिस्टरला घेणेत यावी.

प्रतिलिपी :- मा.विभागीय वन अधिकारी चिपळुण यांना माहितीसाठी सादर.

MAHARASHATRA POLLUTION CONTROL BOARD
REGIONAL OFFICE, KOLHAPUR

Phone : 0231-2652952 /2660448

Fax : 0231-2652952

Email : rokolhapur@mpcb.gov.in



Udyog Bhawan Near Collector Office,

Kolhapur - 416003

Visit At : <http://mpcb.gov.in>

Orange/S.S.I/

Date: 09/05/2018

Consent No: RO-KOLHAPUR/CONSENT/1805000435/215/18

Consent to Operate under Section 26 of the Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization / Renewal of Authorization under Rule 5 of the Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016.

[To be referred as Water Act, Air Act and HW (M&H) Rules respectively].

CONSENT is hereby granted to

M/S. CHETAK ENTERPRISES
GAT NO. 517, SUKAIDEVI MANDIR RAOD, KAMATHE,
TAL- CHIPLUN, DIST-RATNAGIRI.

located in the area declared under the provisions of the Water Act, Air act and Authorization under the provisions of IIW(M&H) Rules and amendments thereto subject to the provisions of the Act and the Rules and the Orders that may be made further and subject to the following terms and conditions:

1. The Consent to Operate is granted for a period up to :31-01-2024

2. The Consent is valid for the manufacture of –

Sr. No.	Product Name	Maximum Quantity	UOM
1	Stone Metals Of Different Sizes	90000	MT/M

3. CONDITIONS UNDER WATER ACT:

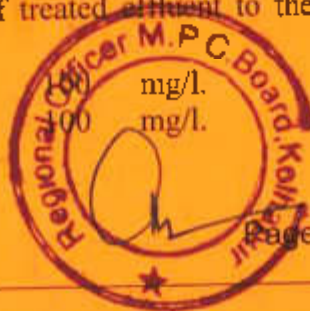
- (i) The daily quantity of trade effluent from the factory shall be nil.
(ii) The daily quantity of sewage effluent from the factory shall not exceed 7.00M³.

(iii) Trade Effluent: N.A.

(iv) Trade Effluent Disposal: N.A.

(v) **Sewage Effluent Treatment:** The applicant shall provide comprehensive treatment system as is warranted with reference to influent quality and operate and maintain the same continuously so as to achieve the quality of treated effluent to the following standards.

- (1) Suspended Solids Not to exceed
(2) BOD 3 days 27o C. Not to exceed



- (vi) **Sewage Effluent Disposal:** The treated domestic effluent shall be soaked in a soak pit, which shall be got cleaned periodically. Overflow, if any, shall be used on land for gardening / plantation only.

(vi) **Non-Hazardous Solid Wastes:**

Sr. No.	Type Of Waste	Quantity	UOM	Treatment	Disposal
			Nil		

- (viii) **Other Conditions:** Industry should monitor effluent quality regularly.

4. The daily water consumption for the following categories is as under:

(i) Domestic	...	10.00 CMD
(ii) Industrial Processing	...	0.00 CMD
(iii) Industrial Cooling / Spraying	...	10.00 CMD
(iv) Agriculture / Gardening	...	1.00 CMD

5. CONDITIONS UNDER AIR ACT :

- (i) The applicant shall install a comprehensive control system consisting of control equipments as is warranted with reference to generation of emission and operate and maintain the same continuously so as to achieve the level of pollutants to the following standards:

A) Control Equipment:

The suspended particulate matter contribution value at a distance of 3 to 10 meters from unit shall be less than 600 microgram/Nm³. These units must also adopt the following pollution control measures.

- 1 Dust containment cum suppression system for the equipments.
- 2 Construction of wind breaking walls.
- 3 Construction of the metalled roads within the premises.
- 4 Regular cleaning and wetting of the ground within the premises.
- 5 Growing of a green belt along the periphery.
- 6 Water sprinkling arrangement shall be provided and operated continuously.

No stone crushing activity will be allowed within 500 mtrs. from National Highway, 200 mtrs. from State Highway and 100 mtrs. from other roads such as major district road, other district road or village roads. Also crusher shall be located 500 mtrs. away from human habitation.

B) Standards for emission of Air Pollutants;

1.	TPM	--	Not to exceed 150 mg/Nm ³
2.	SO ₂	--	Not to exceed 10.0 Kg/D.

6. Conditions for D.G. Set :N.A.

- (i) The applicant shall observe the following fuel pattern:-

Sr. No.	Type Of Fuel	Quantity	UOM
1	Diesel	100	Ltr/Hr

- (ii) The applicant shall erect the chimney(s) of the following specifications:-

Sr. No.	Chimney Attached To	Height in Mtrs.
1	D. G. Set (400 KVA)	4.00 Above the roof level
2	D. G. Set (500KVA)	8.00 Above the roof level

- (iii) The applicant shall provide ports in the chimney/(s) and facilities such as ladder, platform etc. for monitoring the air emissions and the same shall be open for inspection to/and for use of the Board's Staff. The chimney(s) vents attached to various sources of emission shall be designated by numbers such as S-1, S-2, etc. and these shall be painted/ displayed to facilitate identification.
- (iv) The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standard in respect of noise to less than 75 dB(A) during day time and 70 dB(A) during night time. Day time is reckoned in between 6 a.m. and 10 p.m. and night time is reckoned between 10 p.m. and 6 a.m.

Other Conditions:

- 1) The industry should not cause any nuisance in surrounding area.
- 2) The industry should monitor stack emissions and ambient air quality Regularly.

7. CONDITIONS UNDER HAZARDOUS & OTHER WASTES (MANAGEMENT & TRANSBOUNDARY MOVEMENT) RULES, 2016:

- (i) The Industry shall handle hazardous wastes as specified below. N.A.

Sr. No.	Type Of Waste	Quantity	UOM	Disposal
The Industry shall not generate any type of hazardous waste				

- (ii) Treatment: - NIL

1. The authorization is hereby granted to operate a facility for collection, storage, transport & disposal of hazardous waste.
2. The industry should comply with the Hazardous Waste (M&H) Rules, 2008.

8. Industry shall comply with following additional conditions:

- i. The applicant shall maintain good housekeeping and take adequate measures for control of pollution from all sources so as not to cause nuisance to surrounding area / inhabitants.
- ii. The applicant shall bring minimum 33% of the available open land under green coverage/ tree plantation.
- iii. Solid waste – The non hazardous solid waste arising in the factory premises, sweepings, etc., be disposed of scientifically so as not to cause any nuisance / pollution. The applicant shall take necessary permissions from civic authorities for disposal to dumping ground.

- iv. The applicant shall provide for an alternate electric power source sufficient to operate all pollution control facilities installed by the applicant to maintain compliance with the terms and conditions of the consent. In the absence, the applicant shall stop, reduce or otherwise, control production to abide by terms & conditions of this consent regarding pollution levels.
 - v. The applicant shall not change or alter quantity, quality, the rate of discharge, temperature or the mode of the effluent / emissions or hazardous wastes or control equipment's provided for without previous written permission of the Board.
 - vi. The applicant shall provide facility for collection of environmental samples and samples of trade and sewage effluents, air emissions and hazardous wastes to the Board staff at the terminal or designated points and shall pay to the Board for the services rendered in this behalf.
 - vii. The applicant shall make an application for renewal of the consent at least 60 days before the date of the expiry of the consent.
 - viii. The firm shall submit to this office, the 30th day of September every year, the Environmental Statement Report for the financial year ending 31st March in the prescribed Form-V as per the provisions of rule 14 of the Environment (Protection) (Second Amendment) Rules, 1992.
 - ix. An inspection book shall be opened and made available to the Board's officers during their visit to the applicant.
 - x. The applicant shall install a separate electric meter showing the consumption of energy for operation of domestic and industrial effluent treatment plants and air pollution control system. A register showing consumption of chemicals used for treatment shall be maintained.
 - xi. Separate drainage system shall be provided for collection of trade and sewage effluents. Terminal manholes shall be provided at the end of collection system with arrangement for measuring the flow. No effluent shall be admitted in the pipes / sewers down-stream of the terminal manholes. No effluent shall find its way other than in designed and provided collection System.
 - xii. Neither storm water nor discharge from other premises shall be allowed to mix with the effluents from the factory.
10. This Board reserves the right to review, amend, suspend, revoke etc. this consent and the same shall be binding on the industry.
11. This consent should not be construed as exemption from obtaining necessary NOC/permission from any other Government agencies.
12. Industry shall obtain consent to operate before starting commercial Production.
13. Industry shall obtain permission from C.G.W.A for the use of Ground Water.



14. Industry shall submit Bank Guarantee of Rs. 1.0 lac to Regional Officer, M. P. C. Board, Kolhapur within 15 days to ensure the compliance of consent conditions.
15. The Capital investment of the industry is Rs. 600.00 Lacs.



(Dilip K Khedkar)
REGIONAL OFFICER, KOLHAPUR

To,
M/S. CHETAK ENTERPRISES
GAT NO. 517, SUKAIDEVI MANDIR RAOD, KAMATHE,
TAL- CHIPLUN, DIST-RATNAGIRI.



Received Consent fee of –

Offline Payment Details (NEFT/RTGS/DD)

Dr no	Bank Name	Transation type	Amount	Received_date	Status
7604814	Axis Bank	NEFT	75000.00	2018-01-24	Approved

Copy submitted to:

1. The Member Secretary, MPC Board, Mumbai.
2. The Chief Accounts Officer, MPC Board, Mumbai.
3. The Sub Regional Officer, MPC Board, Chiplun.
4. Cess wing/Statistical wing/Air wing/Hazardous Management wing, MPC Board, Mumbai.