GOVERNMENT OF ARUNACHAL PRADESH

ARUNACHAL PRADESH RURAL ROAD MAINTENANCE POLICY

ARUNACHAL RURAL ROAD DEVELOPMENT AGENCY ITANAGAR

DECEMBER'2017

#SRWD-43/PMGSY/2016-17

GOVERNMENT OF ARUNACHAL PRADESH
SECRETARIAT :: RURAL WORKS DEPARTMENT

Itanagar-791 111
Dated 31st December,2017

NOTIFICATION

The Governor of Arunachal Pradesh is please to notify the Arunachal Rural Roads Maintenance Policy-2017 with Standard Operating Procedure for implementation in the State.

The Arunachal Rural Roads Maintenance Policy-2017 with Standard Operating Procedure will come into force with immediate effect which will remain in operation till such time the State Govt. may consider deem fit and proper.

Sd/-
Chief Secretary
Govt. of Arunachal Pradesh

Memo #SRWD-43/PMGSY/2016-17 **Dated 31st December,2017**
Copy forwarded to :-

1. The Secretary, Rural Development, Ministry of Rural Development, Krishi Bhawan, Govt. of India, New Delhi – 110 001.
2. The Joint Secretary(RC) & DG, NRRDA, Rural Development, Ministry of Rural Development, Krishi Bhawan, Govt. of India, New Delhi – 110 001.
3. The Secretary to Hon'ble Chief Minister, Govt. of Arunachal Pradesh, Itanagar.
4. The PS to Hon'ble Deputy Chief Minister, Govt. of Arunachal Pradesh, Itanagar.
5. The PS to Hon'ble Minister(RWD), Govt. of Arunachal Pradesh, Itanagar.
6. The PS to Hon'ble Parliamentary Secretary(RWD), Govt. of Arunachal Pradesh, Itanagar.
7. The Under Secretary to Chief Secretary, Govt. of Arunachal Pradesh, Itanagar.
8. All Commissioners and Secretaries, Govt. of Arunachal Pradesh, Itanagar.
9. All Head of Department, Govt. of Arunachal Pradesh, Itanagar.
10. Office copy.

31/XII/17

(Kapa Kholie) IAS
Secretary (RWD)
Govt. of Arunachal Pradesh

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Rural Works Department
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Arunachal Pradesh:: Itanagar

INTRODUCTION

Road network plays a very important role in the landlocked state of Arunachal Pradesh. Rural roads are critically important in terms of providing access to social and economic services as it act as facilitators to promote and sustain agricultural growth, improve basic health, provide access to schools and economic opportunities. They, thus, hold the key to accelerated poverty alleviation, socio-economic transformation, national integration and breaking the isolation of village communities.

To achieve connectivity to the remotest villages in the State, the Government has been relentless in its effort and after commencement of PMGSY; the State has been able to construct approximately 350.00 kms of rural roads every year, thereby contributing to a total rural road network of about 5369.00 kms. Road connectivity has contributed to positive changes in the State like access to education facility; market centre and improved medical facilities.

This huge asset created thus needs a huge effort and resources to maintain the same. It would not be out of place to recall that a World Bank study in 1988 demonstrated that spending one rupee on maintenance would have saved three rupees in rehabilitation. In the case of rural roads, the condition is still more serious as it affects the rural poor badly. Maintenance of rural roads is, therefore, not simply a financial and economic issue but also a humanitarian priority.

OBJECTIVES OF ROAD MAINTENANCE

The principal objectives of road maintenance are to ensure that the road remains serviceable throughout its design life. Maintenance is important because it;

- Prolongs the life by reducing the rate of deterioration, thereby safeguarding previous investments in construction and rehabilitation;
- Lowers the cost of operating vehicles on the road by providing a smooth running surface;
- Keeps the road open for traffic and contributes to more reliable transport services;
- Sustains social and economic benefits of improved road access.
- Generates local employment opportunities and additional market prospects for the local construction industry

- Maintenance of rural roads provides an economic rate of return which is often in the range of 25 to 30 percent.

IMPACT OF POOR & INADEQUATE MAINTENANCE

- Loss of Assets: An investment of about Rs. 2654.00 crore has been made so far (up to October 2016) under PMGSY in the state. Besides this, under state plan investments are also made to accelerate the rural connectivity. The annual average expenditures for rural road in the state are in the range of Rs. 200 to Rs.250.00 crore for establishing connectivity. The resulting loss in value of road assets due to neglect in maintenance would be as high as Rs. 75.00 crore per year, equivalent of about 60.00 km of roads being eroded every year.

- Loss of Agriculture Output: Rural roads often become impassable during the rainy season and agriculture output is affected.

- Loss of Time: More working time is lost in travel and transport of people and agriculture produce to market thus slows the economic growth.

- Heavy Rehabilitation Costs: A large backlog of deferred maintenance is caused, resulting in 4 to 6 times the cost in restoration and rehabilitation. This will also put additional avoidable burden on transporting road aggregates from long distances resulting in increased carbon footprint due to pollution.

- Vehicle Deterioration: Not only roads get deteriorated, even the life of vehicles is seriously eroded due to poor road conditions beside vehicle operating costs also increased.

- Poor maintenance also reflects weak governance and does not present a good image of the Govt. institutions.

REPLACEMENT VALUE OF RURAL ROAD ASSETS

The current replacement value of the existing rural roads in the state defies precise estimation in view of virtual absence of the system of regular updating of inventory and condition surveys of road stretches, bridges, culverts, traffic control devices, etc. These huge assets justify preservation. A broad assessment is given in **Box 1**

Box: - 1. The replacement value of existing Rural Road Assets in Arunachal Pradesh
(Broad Assessment based on as of October' 2016)

Sl. no.	Broad category	Length (km)	Unit Cost (Rs. Lakh / Km)	Amount (Rs. Crore)
A.	**PMGSY Roads**			

i.	New Connectivity	1572.00	105.00	1650.60
ii.	Up gradation	32.15	65.00	20.90
B.	**Non PMGSY**			
i.	Core roads	112.00	105.00	117.60
ii.	Non-core roads	208.00	105.00	218.40
	Total	**1924.15**		**2007.50**

Any inadequacy in funding and implementation on the ground will result in the erosion of the asset base. International experience says that annual loss in capital value is three to five times the budget that is required to maintain the rural road assets. The State is committed towards ensuring adequate funds for maintenance of the entire rural road network within its jurisdiction. Under no circumstance, maintenance shall be regarded as a secondary issue.

The Government of Arunachal Pradesh intends to adopt a rural roads & bridges maintenance policy for the planning & execution of maintenance of rural roads & bridges under its jurisdiction and shall be called as "**Arunachal Pradesh Rural Roads Maintenance Policy 2017".**

The policy takes into consideration the Government's commitment to funding and ensuring transparency in its working, bidding, e-tendering, contract management and implementing rural roads maintenance as under :

1. Introduce system of working out asset value of the network at the close of each financial year. Box 2 provides indicative steps for assessing replacement value of the rural road assets.

Box 2: Assessing Replacement Value of Rural Road Assets

i. Each EE/PIU is directed to provide the assessment in the month of July / August (lean period of execution) every year.
ii. Standard format for inventory and condition survey to be specified by ARRDA for collection of data
iii. Each EE/PIU works out the replacement value of roads within its jurisdiction as per illustration given in Table 1.
iv. The replacement value of the total rural road network is put in public domain by the state government

2. Constitute a committee at state level to woks out mobilization of maintenance funds and realistic norms for maintenance of rural roads covering routine periodic and emergency maintenance. Box 3 provides brief explanation and Box 4 indicates major activities to be incorporated in maintenance norms.

Box 3: Committee for Resource mobilization and workout Norms for Maintenance of Rural Roads

State Government constitutes a Committee comprising senior level officers drawn from technical, administrative and finance department to work out the norms and avenues for mobilization of dedicated maintenance funds within three months time. The committee may comprise of:

i. Commissioner/ Principal Secretary (Finance)
ii. Secretary (RWD)
iii. Chief Executive Officer, ARRDA/Chief Engineer, RWD
iv. Chief Engineer (EZ), PWD
v. Finance Controller, ARRDA
vi. Consultants / other departmental representatives.

Box 4: Major activities for incorporation in Maintenance Norms

A. Routine Maintenance

- Maintenance of Bituminous surface road including filling pot holes and patch repairs where necessary etc
- Filling up edges of asphalt surface.
- Dressing of berms, maintenance & making up of shoulders, Erosion control on shoulders, slopes
- Restoration of rain cuts and dressing of earthen embankments, Turfing whenever necessary.
- Re-fixing displaced guard stones, white washing guard stones, parapets of CD and bridges.
- Fixing disturbed cautionary & informatory board, village name board etc.
- White washing and Geroo painting of trunks of trees.
- Cutting of branches of trees etc obstructing flow of traffic and line of sight, and cleaning wild growth on berms and trimming of grass and weeds etc.
- Topping of W.B.M. blindage including picking of loose metal.
- Maintenance of catch water drains,clearance and de-silting of cross drains, cause ways ,other waterways and side drain.
- Clearing and re-shaping of unlined road side drains.
- Making up the loss of profile (for gravel roads).
- Rectifying Corrugated Surface (for gravel and WBM Roads).
- Filling up local depressions, ruts, potholes and erosion control (for gravel and WBM Roads).
- Re-gravelling (for gravel roads).
- Repairing damaged edges and Rectifying revelled surface (for WBM).
- Painting & rewriting of Km & Hecto stones, information board, Logo & other road Signs
- Maintenance of 200 m , 500 m and Kilo Meter stones
- Maintenance of guard rails and parapet rails
- Reshaping to maintain camber
- Bridge repairing

Periodic Maintenance

- Renewal of road surface
- Major repairs to CD works including bridge, retaining structure.

Emergency Maintenance

- Reconstructions / repair of CD works including bridge damaged due to floods, earthquakes
- Reconstruction / repair of road sections damaged due to washouts, floods, landslides, earthquakes

Special Repairs

- Clearing of landslides
- Repairing / Reconstruction of retaining wall / breast wall, damaged drains
- Repairing / Reconstruction of road formation/ Back cutting/Embankment etc.
- Repairing / Reconstruction of road damaged due to laying of public service utilities.
- Repairing / Reconstruction of damaged bridge
- Repairing / Reconstruction of cut/ side slope using modern & new technology.

3. Overall responsibility for efficient planning management and delivery of rural road maintenance shall be of ARRDA/ RWD including coordination with other line departments handling the works of rural roads. A dedicated planning, budgeting and monitoring unit, in the ARRDA / RWD headquarter to be headed by a Superintending Engineer (P), who shall be responsible for planning, budgeting and monitoring of all maintenance works of the road network including bridges under the overall guidance of the Chief Executive Officer, ARRDA.

4. To ensure allocation of adequate and timely availability of funds needed for maintenance of rural roads and bridges as per Annual Maintenance Plans prepared by the ARRDA, a dedicated maintenance fund reserve should be created.

5. **Resource Mobilisation**: Constitute a committee at state level to woks out mobilization of maintenance funds including of deferred maintenance funds for maintenance of rural roads and bridges as suggested in Box-3. Potential avenues for resource mobilisation are as follows:

(i) There is a need for a budgetary provision in State Budget for maintenance of PMGSY roads. From 2017-18 Plan and Non-Plan distinction would be done away with. The provision for maintenance of rural road may be shown under "Capital Expenditure". A special Head of Account in State Budget for maintenance of Rural Roads may be created.

(ii) Proportionate funds for maintenance of rural roads out of the Finance Commission Grant from Central Government would be decided by the Apex Committee.

(iii) Additional reasonable cess on transport fuels (Petrol and diesel).
(iv) Additional tax on hotel industry (cess on luxury tax, etc.)
(v) Toll tax on National and State Highways.
(vi) Additional taxes on forest produce /mines & minerals in the state
(vii) Additional levy on vehicle registration
(viii) Additional taxes on motor parts
(ix) Additional levies on companies putting hoardings / advertisements by the side of roads
(x) Contribution by power corporation/company
(xi) Cess or charge imposed on road users for laying utility service like cables for phone connectivity, etc.
(xii) A portion of State Own Tax Revenue transferred to Local Bodies may be earmarked for maintenance of rural roads i/c PMGSY .
(xiii) Fund from Panchayat / Autonomous District Council / Local bodies revenue or through the devolution Grants.
(xiv) The allocation of funds by the State for maintenance would be increased gradually.
(xv) Any other sum or grant as may be decided from time to time for the purpose of rural road maintenance by the Government.
(xvi) Any grant, aid, bequest, donation, gift, subscription, loan or other sum lawfully received by the department for maintenance.
(xvii) Any other income accruing to the Fund including by way of investment or interest accruing from the Fund balances.

(xviii) In case amounts allocated for the Fund remain uncommitted or unspent at the end of any financial year for any reason whatsoever, then such amounts shall continue to vest with the Fund and shall be available for utilisation in the next financial year.

6. Government shall constitute a standing Empowered Committee (EC) to decide the annual allocation of funds for maintenance of different categories of roads and bridges with reasonable share for rural roads and bridges based on the percentage of rural roads and bridges with respect to the total road network. The EC may comprise of Secretary (Finance), Secretary (RWD), Chief Executive Officer, ARRDA/Chief Engineer (RWD),and other representatives / consultants.

7. In this connection, the recommendations made by the International Labour Oganisation (Guidelines for States, February 2016), may capture the critical attention of the implementing agency. Among the recommendations special reference can be made to:

i. The consultation of a Core Group consisting of MLAs, representatives of Local Self Government and Chief Engineer (RWD), Chief Executive Officer, ARRDA for better community service in such a way that the technical service may be seen more as essential component of the integrated attempt.

ii. Functional District planning Committee (DPC) to guide and approve the District Rural Road Plans and also to act as a bridge between villages and Block / District/ State headquarters.

iii. High Level Steering Committee to steer and streamline the devolution of functions of maintenance of rural roads.

In fact, there is a growing necessity for ensuring continuous Institutional Parenting for rural networks in the State.

8. Formulate an Action Plan for time bound removal of maintenance backlog of the rural road network so that the network is brought to an acceptable level of service. On the basis of road condition index (base year 2017-18) and reports generated through Road Maintenance & Management System (RMMS), the state shall identify backlog & remove it in the period of 5 years in a phased manner and the funds for the purpose shall be made available. Apart from backlog, recurring annual maintenance fund also shall be provided by the State Govt. every year to the Arunachal Rural Road Development Agency (ARRDA).

9. ARRDA shall institute an annual performance evaluation system to inform the government about the delivery of maintenance and condition of the rural road network as a result of funds allocation for the purpose.

10. ARRDA/RWD shall simplify the existing Road Maintenance & Management system (RMMS) for rural roads to prepare Annual Maintenance Plans for each PIU based on scientific condition assessment of the road network including non-PMGSY roads.

11. The field units of PIU shall collect/outsource the road condition data and inventory data and capture the condition of roads through geo-tagged photography/videographer (having longitude and latitude) of location and such details shall be uploaded suitably on the department website.

12. Set up Special Zonal Task Forces in each district to deal with emergency situation arising due to natural disasters headed by Chief Engineer(RWD, Chief Executive Officer ARRDA, SE(P), HQ, RWD and concerned SE, RWD of the districts as members.

13. Some pilot works of maintenance shall be undertaken jointly by PIU of ARRDA/RWD and relevant block/gram panchayat and steadily move towards devolving maintenance responsibility in respect of rural roads to Panchayati Raj Institutions. Similar pilot project shall be undertaken with the involvement of local community participation.

14. Training shall form an integral part of Institutional strengthening of the ARRDA/RWD. For this ARRDA/RWD shall formulate a calendar of training programmes for its technical officers at various levels. These training programmes shall include development and dissemination of training modules covering all aspects of road maintenance from planning to execution to monitoring of entire maintenance activities with support from NRRDA. An in-house cadre of trainers shall be developed for imparting both on-site as well as off-site training to field staff. Training programmes shall also include study tours aimed at exposing officials to national/international best practices.

15. ARRDA/RWD shall extend support in providing outreach programmes in enhancing the training facilities for 1st class contractors in implementation of maintenance works. For this, the contractor's associations shall be associated to work out the details of training modules, training providers including on-the-job exposures in close association with the road construction agencies. Such modules could be in the form of booklets / hand-outs in various maintenance operations as also in audiovisual mode.

16. The ARRDA/RWD shall identify and pilot innovation maintenance models and technologies. These innovations shall be in the form of piloting and adopting different models of outsourcing maintenance works which could be in the form of Performance Based Maintenance Contracting (PBMC), Community Contracting or a hybrid system involving combination of PBMC and conventional Engineering, Procurement and Construction (EPC). The thrust on innovative technologies shall be on materials that can be used in all weather conditions, reduce time and manpower required for repairs, thereby improving productivity. The technology shall be cost effective, easy to manage, off the shelf materials for patch / pothole repair and application with simple tools with all maintenance items being accommodated in a small vehicle for speedy execution. Possibility of adopting new techniques for pothole repairs such as first time permanent repairs shall also be explored. Effort shall be on environment friendly technologies.

17. The ARRDA/RWD shall undertake road user satisfaction surveys every three years on its rural road network and put the result on the website.

18. Detailed guidelines for execution of maintenance policy will be finalized by ARRDA/RWD. The essential methods & procedures to assist in implementation of Annual Maintenance Plans have been incorporated in these guidelines and attached as (Standard Operating Procedures for Maintenance of Rural Road Network in Arunachal Pradesh). The objectives & expectations from the maintenance work, utilization of resources, responsibilities & functions of staff at different level, procedures for contract management, quality assurance, technical specifications, maximum response time have been explained in these guidelines.

19. Necessary amendments may be made in the provisions of the guideline by the ARRDA/RWD on the basis of experiences.

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STANDARD OPERATING PROCEDURE FOR

MAINTENANCE OF RURAL ROAD NETWORK

IN ARUNACHAL PRADESH

CHAPTER ONE

INTRODUCTION

1.1.1 Rural Road occupies an important position in the transportation system of Arunachal Pradesh. Rural Road infrastructure is critical to economic growth and social development. Maintaining these roads in serviceable condition is crucial to agricultural and industrial growth on one hand and affording means of access to the public.

1.1.2. The continued extension and improvement of the road network does however create new and growing challenges in terms of an increasing maintenance burden. In order to sustain the benefits of the investments made in building and improving roads, there is a need to boost capacity in terms of providing adequate maintenance.

1.1.3. More emphasis needs to be placed on the maintenance of already existing infrastructure assets. This implies that and an increasing proportion of funds and managerial capacity needs to be allocated for protecting the investments made earlier in building the rural road network.

1.1.4. From a technical point of view, there is no shortage of technical guidance on how the works should be carried out since the engineers of ARRDA/ RWD had already been trained in rural road maintenance work. The challenge seems to be more related to how maintenance should be organized and when it should be carried out. There is, however, a need to define requirements at operational level which ensure that technical means are secured in order to actually carry out the required maintenance. Therefore, it has been felt necessary to put in place a Standard Operating Procedure for maintenance of the roads at operational level for securing adequate and timely maintenance of the rural road network.

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CHAPTER TWO

STAFFING

2.1 Organisational Setup

2.1.1. Arunachal Pradesh State Rural Roads Development Agency / Rural Works Department shall be responsible for the operation and maintenance of the entire rural road network under its jurisdiction. The administrative control of the department shall rest with the concerned Secretary to the Government of Arunachal Pradesh. The Chief Executive Officer, ARRDA would be the overall in – charge. The construction and maintenance of the rural road network shall be supervised by the Superintending Engineers of concerned circle who have control over the PIUs. These PIUs are further divided into a number of sub divisions headed by an Assistant Engineer. The Assistant Engineers are assisted by a number of Junior Engineers each of whom is in-charge of a section. The Junior Engineers are in turn assisted by Work Inspector, Surveyor, etc.

2.1.2 A dedicated Planning, Budgeting and Monitoring (PBM) Unit in the ARRDA headed by a Superintending Engineer (P) shall be responsible for Planning, Budgeting and Monitoring of all maintenance works of the road network under the overall guidance of the Chief Executive Officer. This unit shall comprise of one Executive Engineer, two Assistant Engineers, two Junior Engineers and two Computer Operators. The Financial Controller shall assist the Superintending Engineer (P) of the PBM Unit in all financial matters.

2.1.3. Technical audit of sample stretches as well as the quality inspections shall be conducted by the Quality Control wing of the ARRDA/RWD under State Quality Co-coordinator (SQC) with the knowledge of Chief Executive Officer, ARRDA.

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CHAPTER THREE

PLANNING AND DESIGN

3.1.1. Maintenance works will include all works of routine maintenance, periodic maintenance, road rehabilitation including pavement strengthening, special repairs and emergency maintenance of PMGSY and non-PMGSY roads wherever applicable.

3.1.2. The PBM unit shall initiate action on maintenance activities as under:

(i) Exercise for review of **Yardstick Norms** for routine maintenance shall commence in October every year and the process completed by 30th November. The norms as finalized shall be notified by 31st December and shall be applicable for the next financial year beginning 1st April. Even in case the norms do not require any change the existing norms shall again be notified by this date.

(ii) A yearly review of the rates of individual items involved in maintenance activities shall be carried out by considering the prevailing market rates as on 1st October of that year and review shall be completed by 30th November. The rates so finalized shall be notified by 31st December.

3.1.3 A periodic Renewal cycle of 5 years shall be adopted for roads.

3.1.4 The specification to be adopted shall be Ministry of Rural Development (MoRD) Specification for rural roads.

3.1.5 The Field units, namely, the PIUs shall be responsible for carrying out the Road Inventory and Road Condition Surveys as per prescribed procedures.

3.1.6 The road condition survey data at every 100 m interval; shall be carried out by the Junior Engineers in charge of the respective sections. They may take the assistance of their subordinate staffs. Their work shall be supervise by their Assistant Engineers and physically checked to the extent of 15% and accordingly certified. The road condition data shall be collected through visual inspection. The Assistant Engineers (P) posted in the circle offices shall simultaneously carry out 10% test check of the road condition data collected by the field units.

3.1.7 The schedule for the above activities shall be as under:

(i) The surveys shall commence immediately after the cessation of monsoons in October and completed by 15th November.

(ii) Data from the survey shall be uploaded on the Road Maintenance Management System (RMMS)/ Road Management System (RMS) by the PIUs by 1st week of December.

(iii) Results of the entire road network shall be generated by the ARRDA/RWD, HQ staff by 31ST December.

3.1.8. ARRDA, HQ shall finalize the priority list for Annual Maintenance Plan (AMP) and disseminate the same to all field officers by the 15th January. The field Executive Engineers on receipt of the approved AMP shall have another verification carried out to confirm that the roads appearing in the AMP with respect to their jurisdiction actually qualify for Periodic Renewal and revert back to the HQ by 31st January with full justification in case any substitution is required. Annual maintenance calendar shall be hoisted on departmental website by March.

3.1.9. Field offices shall initiate action for preparing estimates and inviting bids for works proposed to be contracted out for the approved chainages of various roads immediately and works shall be awarded by 25th March.

3.1.10. Implementation shall commence by 10th April.

3.1.11. The annual calendar of Road Maintenance Activities shall be as given in Table 1

Table 1 : (a) Annual calendar of Road Maintenance activities

Sl. no	Item of work	Intervention Standard	Response time	Frequency	Remarks
1	**2**	**3**	**4**	**5**	**6**
1.	Cleaning/ de-silting of road side drain / gutter				
	Water diverted out of drain onto roadway	Causing a hazard to traffic	Immediate	Thrice (i) February (ii) May & June (iii)August & September and as and when require i.e. blockade more than one-fourth	
	Obstruction of Siltation impeding flow	Blocked by more than one-fourth of the size of the drain	14 days and prior to monsoon		
2	Pothole Filling				
	Collection of patch repair material for Bituminous			(i) January & February (ii) July & September	
	Collection of patch repair material for WBM repair			(i) January and February (ii) July and August	

	Pothole filling in Bituminous and rigid pavement with maximum dimension more than 200mm, cracks, edge breaks, ruts and depressions	All potholes = 75mm depth, Cracks > 5mm in width, Edge Breaks > 150mm in width, Ruts > 50mm in width, Depressions > 50mm in width	21 days		
	Pothole filling in WBM with maximum dimension > 200mm	Depth > 75mm	21 days		
	Pothole filling gin Gravel / Kutcha surface	Depth>50mm Width>300mm	45 days		
3	Fillings edges of bituminous surfaces and replenishing/ lowering earthen / hard shoulders	Deference more than (-) 50mm /(+) 0mm		Before and after monsoons and as and when required i.e when the requirements as specified arte exceeded as per Col. 3	
4	Dressing of berms			Before and after monsoon and once in between i.e. February / March, June, August and September	
5	Restoration of rain cuts and side slopes			September and as and when required	
6	Cleaning of Cross Drainages				
	Debris and silt reducing effectiveness of structure, broken or cracked structure causing instability, under mining or not functioning properly	Blocked by more than on-fourth of the size of the culvert opening	14 days	Twice (May and October) and as and when required i.e. blockade more than one-fourth of the opening	
	Deformation of culvert, its invert and alignment		45 days and prior to monsoon		
7	White washing of Parapets, Guide			Twice (April and October)	

	Stones, Tree Trunks etc				
8	Re-fixing disturbed caution boards, other signage etc.			Once and as and when required	
9	Re- fixing displaced km. Stones, 200m stones, guard stones, guard rails.			Once and as and when required	
10	Cutting of branches of trees, pruning shrubs			Once (October)	
11	Removing wild seasonal growth on berms and from road side structures			Twice (March and September)	
12	Painting of km. Stone, Numbering of culverts, road markings etc. Including history of road on km. Stone			Once (April / November)	
13	Maintenance of T & P	All round the year			
14	Removal of encroachment	All round the year			

(b) Calendar of Bridge Maintenance activities			
Activity	**Units**	**Maintenance Routine (R) Periodic (P)**	**Frequency**
Removal of foreign materials such as silt, vegetaion etc. from kerb side of deck, drainage spouts and cleaning	Linear meter	R	Twice a year
Removal of foreign material such as silt, vegetaion etc. from expansion joint and cleaning.	Linear meter	R	Twice a year
Removal of foreign materials such as silt, vegetation from the sides of bearings	Each	R	Twice a year
Removal of vegetaion from substructure	Each	R	Twice a year
Replacement of missing stones washed away from bed flooring, apron, toe walls guide bund, etc	Cum.	R	As and when required

Replacement of missing stones/bricks and pointing for masonry portion of bridges	Cum.	R	As and when required
Clear the waterway of obstruction, island formation and vegetation	Cum.	R	Once a year
Restoration of missing/damaged footpath slabs	Linear meter	R	As and when required
Repainting of Bridge numbering	Each	P	Once every two years
Re-painting of kerbs	Linear meter	R	Once a year
Greasing of metallic bearings	Each	P	Once a year
Repair of loose or missing connectors or fixings for timber bridges	Each	R	As and when required
Restoration of defective/missing plans for timber bridges	Each	R	As and when required
Painting of structural members of steel bridges	Square meters	P	Once a year
Welding/Rivetting damaged joints for steel bridges	Linear meter	R	As and when required
Replacement of damaged, corroded members for steel bridges	Each	R	As and when required
Patch Repair of damaged wearing coat	Square meters	R	Twice a year
Welding of loose members of angle iron expansion joints. Tightening of nuts, bolts	Each	R	As and when required
Replacement of joints sealants for ordinary type expansion joints	Linear meter	P	As and when required
Epoxy concreting for replacement of spalled concrete	Square meters	P	As and when required
Guniting/crack sealing of affected portions of bridge	Square meters	P	As and when required
Replacement of missing/damaged elements of hand rails	Linear meter	R	As and when required

Providing and restoring steps on all four sides of bridge for access to the bottom of the structure	Each	To start with, this will be a one time activity wherever this facility is not provided. Thereafter frequency of maintenance by way of replacement of missing stones or spalled concrete/pointing will be as and when required.	
Inspection of Bridge and purchase and maintenance of Inspection vehicles/units	Each	P	Every three years

3.1.12 The concerned Superintending Engineer of Circle shall closely monitor the progress of the above activities in respect of their jurisdictions.

3.1.13 The Junior Engineer shall prepare monthly Maintenance Plan of the roads and forward it to the Assistant Engineer one week before the commencement of the respective month for approval.

3.1.14 In case of Divisions having labour in excess of the norms the Executive Engineer shall, in consultation with the Superintending Engineer, prepare a list of works such as construction of side drains, culverts, parapets, retaining / breast walls etc. That could be entrusted to such surplus labour. The quantum of works thus identified should be commensurate with the prescribed norms for tasks for labour. This list shall be prepared and finalized within the first three months of the calendar year so that these works are taken up from the start of the next financial year.

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CHAPTER FOUR

INSPECTION

4.1. Duties

4.1.1. Attention of all officers/officials of the Department is drawn to the imperative necessity for the maintenance of the roads under their jurisdiction. In order to maintain the roads efficiently and economically, officers/officials in-charge of the roads must exercise the greatest care to see that money and materials are used with caution and financial prudence. To achieve this, frequent inspections are necessary and in this connection the following broad principles are laid down:

(i) The Mate shall keep a strict watch on the condition of the entire stretch of road under his beat and cover the same daily.

(i) The Junior Engineer in-charge shall inspect the entire road length under his jurisdiction at least once every week. He shall simultaneously verify at site the contents of the Daily Progress Report as maintained by the Mate in his dairy and initiate the same.

(i) The Assistant Engineer in – charge of the road shall ordinarily travel at the rate of 30 Km per day and inspect the entire length under his jurisdiction shall invariably be accompanied by the Junior Engineer in-charge to whom he can give the necessary directions for repairs.

(iv) The Executive Engineer shall also arrange to travel only moderate distance each day and shall be accompanied by the Assistant Engineer in-charge. He shall inspect all the roads under his jurisdiction once in every three months.

(v) The Superintending Engineer of concerned Circle shall, whenever possible, be accompanied by the Executive Engineer. He shall plan his visit through alternate routes rather than following only the regular and direct route while proceeding/coming back from tour. This is necessary to ensure that alternate routes/interior roads get inspected even when the purpose/destination for the tour may be different. It may, therefore, be ensured that the officer does not undertake to and fro journey through the same route. He shall travel on alternate route on one or another journey.

(vi) Every effort should be made to issue instructions verbally and with personnel consultation supplemented by notes in the notebook of the person to whom orders are given. This procedure will save time in writing long inspection notes.

(vii) Superintending Engineer should be able to supplement the notes given in the notebooks with more precise orders.

(viii) From the point of view of safety of traffic, as well as from the point of view of safety of road berms. The Inspecting officers should make special note of the condition of the berms and their improvement since the last inspection and record the same in the notebook of the Junior Engineer and the Assistant Engineers.

(ix) The Superintending Engineer shall also inspect the roads from overall road safety considerations and give appropriate directions.

4.1.2. Duties of Mate:

(i) To report to Junior Engineer.

(ii) To mark daily attendance of labour working under him.

(iii) To help in the layout, marking, checking the quality and quantity of work done by the labour and get the work executed as per instructions.

(iv) To assist the Junior Engineer in taking out the measurement for daily work done by labour.

(v) To display necessary caution boards for safety point of view as per standard layout.

(vi) To report to his senior about any causality, accident, encroachment of Government property within his beat.

(vii) To maintain T&P and sign boards under his charge.

(viii) To carry out jobs of semiskilled nature connected with his trade along with his gang.

(ix) General supervision over unskilled labour.

(x) To get cement/composite mortar prepared in his presence as per instructions of Junior Engineer.

(xi) To report about damages to structures, kilometer stone etc. and keeping them in position.

(xii) To comply with any instruction given by his immediate superior.

(xiii) Daily labour report, D.L.R.

(xiv) To ensure adequate quantum of work being done by gang and that it conforms to norms.

(xv) To keep account of permanent articles, for example direction boards, trees, drums etc. in his beat.

(xvi) To ensure providing and proper up keep of diversions.

4.1.3. Duties of Work Inspector/Supervisor

(i) To report to Junior Engineer.

(ii) To maintain daily diary of the work done and put up to the Section in-charge every alternate day.

(iii) To maintain daily receipt/daily consumption of material consumed.

(iv) To help in preparing estimates for minor works and repairs.

(v) To ensure execution of work according to specifications and drawings.

(vi) To take round of various bridges and roads under his charge on regular basis and report to section in-charge about repairs to be done. He shall also assist to plan out a programme for such repairs in advance and ensure their execution through the department labour within the specified period.

(vii) To assist Junior Engineer in taking out measurement and distributing work to labour daily and checking their attendance.

(viii) To estimate and indicate rough quantities of materials required.

(ix) To take measurement of daily work done.

(x) To ensure adequate quantum of work being done by gang and that it conform to norms.

(xi) To maintain material at site account and account of traffic signs.

(xii) To report about unauthorized constructions and encroachments on government premises.

(xiii) To comply with the instructions given to him by his immediate officer.

(xiv) To ensure submission of daily report.

(xv) To see that log books are filled daily for machinery and that machinery are parked properly.

(xvi) To maintain details of land width and check encroachments

(xvii) To ensure proper maintenance of speed humps and caution boards including their painting.

4.1.4. Duties of Junior Engineers:

(i) Inspection and supervision of works as per prescribed norms.

(ii) Recording the progress of both casual and regular labour in the Measurement

(iii) Book (MB) and ensuring that the output of labour matches with the norms for task for labour.

(iv) No progress of all activities is recorded.

(v) Reporting observations to higher authorities.

(vi) Preparing estimates for repairs after conduction conditions survey of roads.

(vii) Reporting about closure of road/obstructions due to any of the following reasons:

(a) Over toping / breach.
(b) Landslides.
(c) Earth Quakes.
(d) Accident.
(e) Any other reason (specify)

(viii) Arranging for removal of obstructions such as dead animals, trees and other debris lying on road.

(ix) Enumerating safely measures and restoration works in case of flood damages and breaches and reports on opening of traffic / completion of restoration

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4.1.5 Duties of Assistant Engineers:

(i) Inspection and supervision of works as per norms.
(ii) Reporting observations which suggestion for remedial action to higher authorities.
(iii) Getting estimate prepared and checked after conducting surveys and site investigations.
(iv) Reporting about heavy rain fall in the area and consequent rain damage.
(v) Enumerating action on the report of Engineering subordinates regarding obstructions, accidents etc.
(vi) Enumerating safety measures and restoration of (both temporary and permanent) works in case of flood damages and breaches.

4.1.6 Duties of Executive Engineers:

(i) Inspection and recording of observations as per prescribed norms.
(ii) Planning and finalization of nature of maintenance activities.
(iii) Arranging men, materials and machinery in advance as per requirements.
(iv) Finalizing action on reports of Assistant Engineers and also on safety measures, diversion in case of breaches and flood damages.
(v) Coordination with various agencies like Traffic Police, Local Administration, Publicity Media etc, in case of emergent repair, interruption to traffic by road blockage, etc.
(vi) Initiate steps for finalizing permanent restoration works.

4.2 Action to be taken in case the road is Breached or Blocked:

4.2.1 Action to be taken by the Mate:

(a) Immediate report of the road breach / blocked will be made to Junior Engineer and Assistant Engineer. The following points will be include in the reports:
  (i) Name of the road.
  (ii) Location of the breach/blockade.
  (iii) Length and nature of the breach/blockade.
  (iv) Date and time of occurrence.
  (v) Assessment of the assistance in the form of men and material required.
(b) “Road closed” boards and “Diversions” boards shall be fixed on both sides at 60 m distance in advance of the hazard.
(c) Arrangements for red lights to be done in case of darkness.
(d) Labour shall be deputed to guide the traffic to prevent any accident.
(e) Construction of diversion, if possible.

4.2.2. Action to be taken by the Junior Engineer.

(a).He will at once visit the site of the hazard and shall ensure that:

(i) Road has been closed by means of barricading with empty drums or any other means available at site.
(ii) That caution and diversion boards have been fixed on both sides.
(iii) Arrangements made to guide the traffic by posting gang men having red flags.
(iv) Arrangements made for red lights and chowkidars etc.
(v) Steps to stop further damage to the road are taken as per site requirement.
(vi) Possibilities of construction of diversion to be explored. If possible the diversion should be constructed with available resources.

(b). He shall immediately report to the Assistant Engineer, Executive Engineer and Superintending Engineer through fax, email, SMS regarding the road breach, duration of blockage of the traffic followed by a detailed report containing:

(i) Name of the road.
(ii) Location of the breach/blockade.
(iii) Length and average depth of the breach.
(iv) Date and time of occurrence.
(v) Duration of suspension of traffic.
(vi) Requirement of men and material for restoration of traffic and road and the approximate cost.

(c). All arrangements and efforts shall be made for restoration of traffic.

(d). He will intimate the details of any losses and injuries to the public, if any, including the extent of compensation if payable.

4.2.3. Action to be taken by the Assistant Engineer.

(a) He shall at once inspect the site of the hazard.
(b) He shall inspect all safety measures taken by the Junior Engineer.
(c) He shall ensure that the restoration of traffic is done at the earliest.
(d) He shall send a detailed report regarding the breach/blockade enumerating all the points given under 2(b) above. In addition to these he will also include the following points:
   (i) To causes of the breach/blockade.
   (ii) Forecast estimates for restoration of traffic and road.
   (iii) Remedial measures to avoid any future occurrence with forecast estimates.
   (iv) Any other information which he wants to include.

4.2.4. Action to be taken by the Executive Engineer:

(a) He shall at once visit the site of breach. In case of multiple occurrences, he will inspect them in order of priority and importance.

(b) He shall ensure speedy restoration of traffic.

(c) He shall send a detailed report to the Superintending Engineer and Chief Executive Officer, ARRDA about the road damage indicating:

(i) Nature and cause of damage with location.
(ii) Proposals for remedial measures with financial implications.
(iii) Nature and course of consequential damages to public properties etc.
(iv) Action taken for restoration of traffic and restoration of damages with financial implications.

(d). He shall be fully responsible for all the action taken for the protection and safety of traffic and road.

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CHAPTER FIVE

EXECUTION OF MAINTENANCE OPERATIONS

(i) In the implementation of maintenance operations, the road user and personal involved in the work shall not be exposed to hazards. Besides, delay and inconvenience to the traffic should be reduced to minimum.

(ii) Traffic hazard and inconvenience be minimized by use of temporary road signs and controlling/guiding of the traffic.

(iii) Maintenance operations should be at a time be confined to small lengths say 30 m in half the pavement width, leaving the other half for use by traffic.

5.1. Output of labour

(i) There should be no ambiguity regarding duties assigned to the supervisory staff so that there is full coordination while identifying jobs and giving direction to the labour. In this connection, the duties of Mates/Work Inspector have been spelt out elsewhere in this document.

(ii) The gang must fully know the tasks they are to carryout and the expected output.

(iii) There should be regularly checking whether the task assigned and outputs achieved are as per norms.

(iv) All works (no work to be recorded as unsusceptible to measurements) executed by the labour both casual and regular shall be measured and entered in the Measurement Book (MB) and if the progress is less than the norms then proportionate recovery shall be made or the wages shall be reduced accordingly by the Assistant Engineer responsible for making payment.

(v) The recommended tasks for labour are given as under:

Table 2

Sr. No.	Task	Norms
1.	Earth work such as in berms, de-silting of drains etc.	
	Ordinary soil	2.50 cum/person/day
	Hard Soil	1.75 cum/person/day
2.	Dressing of berms	75.0 sqm/person/day
3.	Jungle clearance	100 sqm/person/day
4.	Patching with premix carpet	0.75 cum/person/day
5.	WBM patching	0.30 cum/person/day
6.	Binding of WBM surface	150 sqm/person/day
7.	Edge covering	60.0 mtr/person/day
8.	Side slope/shoulder repair	2.00 cum/person/day
9.	Maintenance of drains	125 rmt/person/day
10.	White washing of parapets, tree trunks, breast walls etc.	30.0 sqm/person/day
11.	Other items as per norms worked out from Schedule of Rates(SOR)	

Note: The quantity mentioned is that of grit and blast used for patch repairs.

(i) For the purpose of monitoring the progress of these works the Mate/Work Inspector In-charge in that section shall be accountable. The Junior Engineer will exercise 100% test check work and Assistant Engineer/Executive Engineer respectively up-to 30 and 10%.

(ii) Instead of deploying labour in a scattered manner, deployment shall be made in gang who will take up work from once and move progressively towards the other end.

(iii) In order to ensure continuous maintenance of roads and availability of some labour even on Sundays to attend to any emergent job, it shall be expedient to stagger week-end holidays to them, whereas casual daily wage workers shall be allowed weekly rest on Sundays and Work Charged/regular labour shall be given weekly holidays on Monday.

Material Procurement

a. Material used for maintenance of paved roads is bitumen/emulsion and aggregate.
b. Bitumen/emulsion shall be procured and stored centrally along with cement required for other repairs.
c. Aggregate and sand shall be collected at site of work as per requirement.
d. The procurement of above materials shall be made as per the Annual Calendar of Road Maintenance Activities shown elsewhere in this document.

Mechanical Equipment

(i) Arrangement for mechanical equipment such as road roller, Mini Hot Mix Plant, if proposed, to be deployed shall be made well in time keeping in view the Annual Calendar of Road Maintenance Activities.

5.4 Tools and Plants

(i) The requirements of tools and plants in good condition for one gang for 20 Km beat having 5 Gang men and one RM shall normally be as shown in Table-3:

Table 3

Sr. no.	Item	Essential Quantity (With Gangs) (nos.)	Option with J.E. in-charge (nos.)
1.	Spades	3	
2.	Pan (Karai)	3	
3.	Pick Axes	2	
4.	Axe	1	
5.	Wheel barrow	3	
6.	Tar Sprinkles (Jharnas)		1
7.	Tar Buckets		1
8.	Tar boiler (mini)		1
9.	Brushes		
	Wire	5	
	Coir	5	

	Hair	5	
10.	Hammer	1	
11.	Rope		
	12 mm	1	
	6mm	1	
12.	Cross Slope Template for berms (camber 3%)	1	
13.	Tar Thermometer		4
14.	Spring Balance		1
15.	Tape 15 mtr	1	
16.	Measurement wooden boxes (35cmx25cmx40cm)		2
17.	G.I. Bucket	1	
18.	Straight edge		1
19.	Caution board		2

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CHAPTER SIX

MONITORING

6.1.1. In order to ensure the desired progress in terms of physical and financial targets, it is essential to keep a close watch through monitoring of returns as well as through online monitoring.

6.1.2. Superintending Engineer of concerned circle in charge shall ensure that there is proper monitoring of all maintenance activities. He shall monitor the physical and financial performance through quarterly returns to be submitted to him by the Executive Engineers in the format as per Tabel-6 (Special Repairs/Flood Damage Repairs) by the 15th day of the calendar month immediately succeeding the quarter under report:

Table-4

Financial Progress of Routine Maintenance

Name of Division:						
Name of Sub-Division:						
Name of road	Length of road (Km)	Budget allotment (Rs. Lacs)	Routine Maintenance (Rs.in Lacs)			Remarks
			Expenditure up-to last quarter	Expenditure during the quarter under review	Cumulative Expenditure during the year	

Table-5

Physical and Financial Progress of Periodic Maintenance

(Physical in Km & Fin. in Rs. in Lakhs)

Name of Division:-											
Name of Sub-Division:-											
Name of Road	Job No.	Sanctioned Length(in km)	Sanctioned Amt. (in Rs. Lakhs)	Achiv. up-to last Financial Year		Target current Financial Year		Achievement during the year up-to last quarter		Achievement during the quarter	
				Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**

Cumulative Achievement during the year		Overall up-to date Achievement		Likely date of Completion	Remarks
Physical	Financial	Physical	Financial		
13	**14**	**15**	**16**	**17**	**18**

Table-6

Physical and Financial Progress of Special/Flood Damage Repair

(Physical in Km & Fin. in Rs. in Lakhs)

Name of Division:-											
Name of Sub-Division:-											
Name of Road	Job No.	Type of Repair	Sanctioned Amt. (in Rs. Lakhs)	Achiv. up-to last Financial Year		Target current Financial Year		Achievement during the year up-to last quarter		Achievement during the quarter	
				Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**

Cumulative Achievement during the year		Overall up-to date Achievement		Likely date of Completion	Remarks
Physical	Financial	Physical	Financial		
13	**14**	**15**	**16**	**17**	**18**

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CHAPTER SEVEN

FINANCIAL MANAGEMENT

7.1.1 The Executive engineer shall maintain cash books in respect of all financial transactions.

7.1.2 All financial transactions made during the month shall be posted monthly in the Register of Works from Works Abstract.

7.1.3 The Register of Works shall serve as authentic record of expenditure being made every month and finally the yearly expenditure of maintenance incurred on each road as this Register is to be maintained with a separate page devoted to each road.

7.1.4 Works executed under the PMGSY programme would in addition to above, be governed by the PMGSY Accounts Manual of Maintenance Fund, by opening a separate Bank account for the Maintenance Fund as per the provisions of this manual.

7.1.5 The payments of bills on account of maintenance of PMGSY roads shall be made out of funds provided to ARRDA for the maintenance of these roads.

7.1.6 The accounting shall be maintained through ledgers maintained at circles level which stand designated as Accounting Centers. The Superintending Engineers and Executive Engineer of these Accounting Centers are authorized signatories for drawl and disbursement of money. All authorized signatories operate on the single bank account opened for Maintenance Fund.

7.1.7 Ledgers shall also be maintained in ARRDA to keep a watch on the expenditure.

7.1.8 The funds be released to these accounting centers by the ARRDA through the system of Bank Authorization.

7.1.9 Year wise, Phase wise and Package wise ledger accounts shall be maintained for accounting of periodic maintenance separately for PMGSY (Regular) and externally funded Projects.

7.1.10 The funds shall be demanded by the Division on the basis of actual bills.

7.1.11 Monthly accounts shall be rendered by accounting centers to ARRDA by the 15th of the following month for their scrutiny and compilation on monthly basis.

7.1.12 Funds received for renewal and routine maintenance shall be shown separately in the monthly accounts.

7.1.13 The Year wise, Phase wise Package wise schedule of expenditure shall be prepared separately for periodic renewal and routine maintenance.

7.14. In case of maintenance work carried out through departmental labour, the Executive Engineer shall demand Bank Authorization for material payment and separate cheque shall be issued by the Superintending Engineer/Executive Engineer authorized for issuing cheques to the concerned Executive Engineer for accounting purpose in their accounts under appropriate heads.

CHAPTER EIGHT

QUALITY ASSURANCE

8.1.1 The Quality Assurance activity, in order to be truly effective has to ensure a progressively improved and uniform quality of the finished work. Maintenance of quality has to be imbibed in the minds of the contractor as well as the officials of the department.

8.1.2 The direct responsibility for ensuring proper quality of work as per approved specifications for achieving the intended performance rests with the field team of Executive Engineer, Assistant Engineer and Junior Engineer. The Superintending Engineer shall be overall responsible for management of Quality System and Procedures for the works under his charge.

8.2 Responsibilities of the field staff

8.2.1 The broad responsibility of the staff and the Engineer-in-charge will be as under:-

(i) To ensure that materials duly approved by the competent authority are used in the work.

(ii) Wherever necessary the Executive Engineer shall approve the sources for respective materials.

(iii) Samples of materials shall be approved by the Executive Engineer

(iv) To ensure that all the mandatory field and laboratory tests as laid down in the specifications are carried out at appropriate time and materials failing to conform to the required specifications are promptly rejected and removed from site
.

(v) As far as practicable all tests on materials shall be carried out at the construction site in a field / District laboratory, which shall be set up under the control of the Executive Engineer. A Junior Engineer of the Division with aptitude for testing shall be selected be the Executive Engineer for manning the laboratory. He shall be given training the laboratory. He shall be given training in the Central Laboratory to familiarize with the various tests, and then placed in charge of the field laboratory.

(vi) It will be incumbent upon the Executive Engineer to keep watch over regular tastings of materials before making payment at the stage of each running bill.

(vii) Samples for tests shall be taken mostly by the Junior Engineer, or some by the Assistant Engineers. Samples for 10% of mandatory tests shall be collected by the Executive Engineer. 10% of the field tests shall be got done by the Executive Engineer in his presence.

(viii) A guard file shall be maintained at all work sites, with copies of all inspection reports to-date.

(ix) Inspection Register, Site Order Book, Record of tests, Hindrance Register, etc. shall be put up for entries and review to every inspecting officer.

(x) The inspecting officers of the rank of Superintending Engineer and above shall not confine themselves only to review of progress, co-ordination and general matters, but shall also inspect the work from quality Assurance aspects.

(xi) The Executive Engineer and Superintending Engineer shall invariably review and sign the guard file of earlier inspections, Inspection Register, Site Order Book, Register of tests carried out, Hindrance Register etc.

(xii) The Executive Engineer shall ensure that the Assistant Engineers and Junior Engineers, as well as the contractor's supervisions in-charge are fully aware of the specifications and method of executive of any new/fresh item work to be taken up in the next 2 weeks. The Assistant Engineer/Junior Engineer/Supervisor/RM shall ensure that this important aspect is not overlooked.

8.3 Quality Assurance set up at Circle Level

8.3.1 The Quality Assurance team with Superintending Engineer of the Circle as its head will comprise the Assistant Engineer (along with his Junior Engineer for laboratory work), whose main job is quality assurance. In order that the role of the Assistant Engineer (QA) is effective in the process of Quality Assurance, the following points are essential:

ii The periodicity of visit of works should be such that the process control at various stages is possible.

iii There should be minimum delay between inspection of work and communication of inspection report to the field information.

iv The Assistant Engineer (AQ) shall carry out his tasks in a manner that relates operationally to the quality specifications and standards lad down for the work, and to control actions that can be applied to the construction process. Thus the Assistant Engineer (QA) should assess those aspects which are important to the overall quality of the finished work.

8.3.2 The functions of the Quality Assurance team at Circle level are to check the compliance of Quality Assurance system by the field units and to guide engineers in quality related aspects of the. For this purpose:

(i) The Assistant engineer (QA) shall carry out a minimum of 4 visits to works every month.
(ii) The Assistant Engineer (QA) shall prepare his program and seek approval of the site in advance of inspection.

8.3.3 Such inspections by the QA team shall, however, not absolve the responsibility of the Junior Engineer/Assistant Engineer/Executive Engineer for accepting only quality work from the contractor.

8.3.4 On the basis of his observations with regard to the quality of works, general adherence to the quality assurance procedures and the standard of progress, The Assistant Engineer (QA) shall submit an overall assessment report to the Superintending Engineer shall comment on the report with minimum delay. The Assistant Engineer (QA) will then send the report to the Executive Engineer concerned for compliance.

8.4 Quality Assurance set up at Zonal Level

8.4.1 Quality Assurance in zones shall be looked after by the zonal Quality Assurance (QA) unit headed by the concerned Superintending Engineer.

8.4.2 The zonal QA unit shall followed the guidelines and norms relating to quality system and procedure as laid down by the state quality co-coordinator (SQC) from time to time. This zonal QA unit shall function under the control of concerned Superintending Engineer who shall be fully responsible for a effective quality assurance in his zone.

8.5 Additional Chief Engineer / SQC set up

8.5.1 The Additional Chief Engineer / SQC shall have the overall responsibility of constantly reviewing the existing quality assurance procedures and updating them on the basis of feedback from the Quality Assurance teams.

8.5.2 His unit shall carry out the functions of Zones (QA) teams for works where no Superintending Engineer (QA) is posted.

8.5.3 Carry out investigations and enquiries with regard to quality related aspects for specific works.

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CHAPTER NINE

MAINTENANCE OPERATIONS THROUGH CONTRACTS

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9.1 EPC (Engineering, Procurement and Construction) contracts:

The Standard Operation Procedures as outlined in the previous chapters shall be applicable for maintenance of the rural road network in situations where maintenance works are outsourced through EPC (Engineering, Procurement and Construction) contracts:

9.2 Performance Based maintenance Contracts:

9.2.1 The contractor shall follow the Annual Calendar of Routine Maintenance activities as per Para 3.1.11 unless a different calendar to be adopted has been specified in the contract document.

9.2.2 The inspections to be conducted by the contractor or by his authorized representative shall ensure that the Intervention Period for undertaking maintenance measures to control defects for adherence to the Performance Criteria for Defects shall be strictly observed as per the Contract Agreement.

9.2.3 Junior Engineer / Assistant Engineer shall immediately report the closure of roads / obstruction due to any of the following reasons

(a) Over topping / breach
(b) Land – slides.
(c) Earthquakes.
(d) Accident
(e) Any other reason such as dead animals, trees etc.

9.2.4 In case road is breached or blocked the contractor shall take following action.

(a)Immediate report of the road breach/ blocked will be made to Junior Engineer / Assistant Engineer. The following points will be included in the reports:

(f) Name of the road
(g) Location of the Breach / blockade.
(h) Length and nature of the breach / blockade.
(i) Date and time of occurrence.
(j) Assessment of the assistance in the form of men and material required.

(b) “Road closed” boards and “Diversions” boards shall be fixed on both sides at 60m distance in advance of the hazard
(c) Labour shall be deputed to guide the traffic to prevent any accident till such time that alternate arrangements are made by the department.

9.3 Safety of Workers and Road Users during Maintenance.

9.3.1 In the implementation of maintenance operations the contractor shall ensure safety of workers and road users as outlined in Para 5.1

CHAPTER TEN

RECOMMENDATION

10.1 REMOVAL OF STAGE CONSTRUCTION

The present policy of stage construction for hilly areas under PMGSY requires revisit as such arrangements require substantial time to provide AWR connectivity to the villages. Therefore, the state government is in the opinion that GoI may review the guidelines and henceforth the road works in hilly areas may be sanctioned for full construction.

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