

No. RW/NH-33044/10/2002/S&R

Dated the 26th September, 2002

To

The Secretary of all States/UTs (in charge of PWD), Engineer-in-Charge and Chief Engineers of State PWDs and UTs (dealing with National Highways), Director General (Border Roads), Chairman, National Highways Authority of India

Subject: Revised Guidelines for selection of National Highway stretches for Improvement to Riding Quality (IRQP) and Periodic Renewal (PR)

The Ministry launched an intensive Programme of Improving Riding Quality (IRQP) under plan funds and Special Repair Programme (SRP) under maintenance and repair funds during 1999-2000 with a view to create perceptible impact on the road users. These programmes have yielded good results in the form of improvement of riding comfort, reduction & vehicle operations Cost (VOC) and consequent appreciation from the users of N.H's. Ministry has continued with the IRQP both under Plan and Non-Plan heads and presently a length of about 33,000 Kms. have good riding surface. It is programmed that balance length of about 12,000 kms. for Non-NHDP portion of National Highway would have good riding surface by March, 2004.

2. Detailed guidelines were issued for selection of stretches of National Highways and specification to be adopted under IRQP and Periodical Renewal Programme vide Ministry's letter of even number dated 25th October, 2000. Based on the feedback and experience gained during the execution of RIQP, need to review the existing guidelines to ensure better performance of stretches to be undertaken under IRQP in future has been felt. Accordingly, in supersession of all previous guidelines/instructions by the Ministry in respect of IRQP/Periodical Renewal, following revised guidelines are suggested for identifying National Highways stretches for improvement of riding quality and periodical renewal.

3. Improvement of Riding Quality Programme

3.1 Criteria for selection of stretches

- (i) Stretches of NHs where existing crust has not failed or disintegrated but have uneven and cracked surface requiring profile correction; or

1-Supersedes circular dated 25.10.2000 and all earlier guidelines

- (ii) Two lane roads carrying about 1500 CVD or more and roughness value more than 3500 mm per km; or
- (iii) Single lane sections having proper geometrics and carrying traffic more than 1000 CVD and roughness value more than 3500 mm/km; or
- (iv) Stretches strengthened more than 5 years ago but have not received renewal treatment and showing signs of distress due to growing traffic.
- (v) Length of stretch should generally be not less than 10 kms. unless such stretches are in continuation of stretches included in earlier IRQP/strengthened reach.

3.2 Specifications

- (a) **For existing pavement thickness less than 200 mm.**
3x75mm WBM/WMM+20mm PC & Seal Coat or MSS.
- (b) **For existing pavement thickness between 200mm and 250mm.**
2x75mm WBM/WMM+20mm Premix Carpet & Seal Coat or MSS.
- (c) **For existing pavement thickness between 250mm and 300mm**
75mm BUSG+20mm PC and Seal Coat or MSS.
- (d) **For existing pavement thickness of 300mm or more**
 - (i) 50mm BM+25mm SDBC if undulations/cracks in the existing surface are less than 10% of the surface area
 - (ii) 75mm BM+25mm SDBC if undulation cracks in the existing surface are between 10-20%.

3.3 Binder in case of SDBC/BC as surfacing shall be polymer/rubber modified bitumen as per IRC:SP-53 2002 "Guidelines on use of Polymer and Rubber Modified Bitumen in Road Construction"

3.4 The above treatment proposed in para 3.2(a), (b) and (c) for existing pavement thickness upto 300mm may be taken as stage construction as designed pavement thickness may be much higher and would be taken up in subsequent stages along with provision of 50mm BM and 25mm SDBC after a period of 2-3 years of completion when WBM/WMM/BUSG layers have settled effectively.

4. Periodical Renewal

4.1 Criteria for selection of stretches:

- (i) Road sections carrying traffic (450 to 1500 CVD) and having minor distress and warranting resurfacing only.
- (ii) Road sections having been strengthened under earlier programme and the surface condition is in reasonably fair condition and renewal is warranted to preserve the surface and provide better riding quality and the proposed renewal is expected to last at least for a period of 3 years.
- (iii) As far as possible, the stretches for periodic renewal should be for a continuous length of about 10 kms. or aggregated to about 10 km for the purpose of estimate and tender and in continuation of reaches improved under IRQP or renewed earlier.

(iv) Specifications for renewal

- (a) 20mm MSS/20 mm PC with seal coat for low traffic roads (<1500 CVD)
- (b) 25mm SDBC/BC for high traffic roads (>1500 CVD). BC shall be laid only where the existing surface has BC as wearing course.
- (c) Binder in case of SDBC/BC as surfacing shall be polymer/rubber modified bitumen as per IRC: SP-53 2002 "Guidelines on use of Polymer and Rubber Modified Bitumen in Road Construction"
- (d) Extra quantity for patching/rectification of potholes/undulation may be provided where required as per site conditions in consultation with Regional Officer.

5. Preparation of Existing Surface

Prior to laying bitumen overlays under IRQP/renewal programme, any existing pot holes and cracks shall be sealed in accordance with clauses 3004.2 and 3004.3 respectively of Ministry's Specifications for Roads and Bridge works. Sealing or filling of surface cracks of the existing pavement may be carried out by using any of the following specifications depending upon site requirements:

- (i) Fog Spray
- (ii) Filling cracks with a binder or a combination of crusher dust and a binder.
- (iii) Slurry Seal
- (iv) Crack prevention courses
- (v) Geosynthetics for filling/sealing of cracks

Note: 1. Crack prevention courses and Geosynthetics shall be used on the existing surface only under IRQP.

2. Profile corrective course for correcting the existing pavement profile, if required, shall be based on estimation of its quantity by taking cross-sections of the existing road at appropriate intervals and provided as per clause 501.8.2 of Ministry's Specifications.

3. For specifications, reference may be made to relevant clause of Ministry's "Specifications for Road and Bridge Works' Fourth Revision-2001.

6. **Tendering**

The splitting of longer stretches into shorter stretches not less than 5.0 km. each is permissible if warranted from site consideration or to facilitate expeditious completion. However, the State PWD shall project as single estimate for the whole identified stretch with separate package for each split section while sending the estimates. It shall be mandatory to commence and complete each package simultaneously within a period not exceeding 12 months from sanction.

7. **Quality Assurance**

7.1 Exercise of quality control during execution shall be the responsibility of the contracting agency executing the work who shall establish requisite field testing laboratory for carrying out all necessary tests on various items of work as per clause 903 of Ministry's 'Specifications for Road and Bridge Works'. If necessary, suitable provisions for this may be incorporated in the NIT/tender documents.

7.2 Since polymer/rubber modified bitumen shall be used in surfacing like SDBC/BC it is mandatory that contracting agency shall carry out independently necessary tests as per Clause 903, Table 900-4 of Ministry's 'Specifications for Road and Bridge Works' to ensure that modified bitumen used meets requirement laid down in IRC:SP:53-2002.

7.3 Three levels of supervision and quality assurance to be established by the PWD shall be mandatory as mentioned below:

Level I The concerned Engineer-in-charge of the PWD shall also independently carry out all necessary tests as per clause 903 of Ministry's 'Specifications for Road and Bridge Works'. The number and frequency of tests shall strictly be as laid down in the Ministry's Specification.

Level II 10% of all tests shall be conducted in the presence of the concerned Executive Engineer and their test results are countersigned by him.

Level III During execution of work concerned Superintending Engineer shall make a visit at least once in three months and record his detailed inspection results about the quality and progress of work.

7.4 The results of the tests carried out by the contractor as well as the concerned Engineer-in-Charge of the PWD shall be properly documented and kept at site and made available to inspecting officers.

7.5 The expenditure for exercising quality control by the concerned Engineer-in-Charge of PWD and monitoring shall be met out of the provisions of 1% for quality control made in the estimate.

8. **Monitoring**

8.1 The contract must provide for furnishing of a programme of work in the form of bar chart by the Contractor. This will be monitored by the Engineer-in-Charge/Executive Engineer and the Superintending Engineer in detail and action for removal of any bottleneck, slippages etc. shall be taken. A consolidated

statement will be sent to Regional Officer by respective SE, of PWD's.

8.2 Since polymer/rubber modified bitumen shall be used in surfacing like SDBC/BC, it is suggested that suitable display boards indicating types of polymer/rubber modified bitumen used and date of laying etc. shall be placed at the beginning and end of each such section. Performance of such stretches shall be closely monitored by making observations/tests every six months (i.e. June and December) for a minimum period of 5 years and six monthly performance reports sent to the Ministry.

9. The reaches under IRQP and PR programme may be identified in consultation with R.O. of this Ministry during the month of October/November and estimates for same got approved by the Ministry before December every year. The pre-tender activities should be taken up immediately along with forwarding the estimate to the Ministry so that the work can commence with 30 days of sanction of work and funds allocated are effectively utilized during the financial year.

10. The proposal for IRQP as well as periodical renewal shall be accompanied by a bar chart showing the IRQP/strengthening/renewal carried out during last 5 years and should be comprehensive to include road marking, traffic signs shoulders drainage and safety measures etc. The estimates for both IRQP and periodical renewal should be got approved from the Ministry.

11. The above instructions may please be intimated to all concerned for immediate compliance.