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Dated the 30th November, 1987

To

All Chief Engineers (R), Headquarter, Regional Officers — Civil/Mechanical; Engineer Liaison Officers

Subject : Guidelines on selection of Bituminous pavements for recycling

The concept of recycling of bituminous surfacings has already been explained in Ministry's letter of even number dated 16.10.85, which also contained brief information regarding various methods of recycling, tentative specifications and advantages of the technique. A need has, however, been expressed by the Project Engineers to underline the important criteria which may serve as a guide for primary selection of bituminous pavements for application of recycling techniques.

2. Broadly speaking, all cases of bituminous surface renewal, pavements needing bituminous profile corrective course and all cases of distressed bituminous courses to be overlaid, distress in which can otherwise not be removed, qualify as potential recycling situations. Nevertheless, in order to assist in selection of specific cases for actual application of recycling technique, broad guidelines are briefly described below :
 - 2.1 All cases of renewal and/or strengthening where higher type of bituminous wearing courses such as Bituminous Concrete (=BC-Asphaltic Concrete), Semidense Bituminous Concrete (=SDBC-Semidense Carpet), or Surfacing, Bituminous Macadam (=B.M.)/Dense Bituminous Macadam (=D.B.M.) as base course and SDBC/BC as wearing course, are involved can be considered for recycling provided they satisfy other requirements also.
 - 2.2. Where recycling of the wearing course alone is stipulated, it should be ensured that the existing pavement is adequate to cater to the cumulative standard axle load of traffic plying over the expected service period of the recycled wearing course.
 - 2.3. However, recycling alone of wearing course shall not be resorted to if any of the underlying course is in distressed conditions. In such a condition, it may be advisable to mill out the wearing course/surfacing and store milled material and take necessary remedial measures for the rehabilitation of the distressed course (s). The remedial measure may also include the alternative of recycling the course (s), if otherwise feasible. The milled material may be recycled then and laid over the same as wearing course/surfacing as the case may be.
 - 2.4 Similar steps for storage and recycling have to be resorted to in case of wearing course/surfacings which may otherwise qualify for recycling but require provision of strengthening course (s) in addition. In such a case the surfacing to be recycled is milled out and strengthening course (s) laid and thereafter the recycled surfacing laid. Alternatively, the milled material can be used in strengthening

course (s) depending on its suitability vis-a-vis the designed pavement course (s), and fresh bituminous course (s) provided as surfacing

- 2.5 With a view to making the maximum possible utilisation of available material all bituminous surfacings in abandoned roads, if available in substantial quantity to justify plant running and with outlet for use available locally or within economic lead, may be considered for recycling in in-plant recycling unit. Abandoned/realigned road length because of realignment, geometric improvement, substantial raising due to floods or construction of ROB etc. are potential cases for consideration.
- 2.6 Even recently laid bituminous courses unacceptable because of deficiency in material quantity, inadequacy of compaction, non-homogeneous mixes because of inadequate heating, or otherwise unacceptable because of being laid in adverse weather condition etc. can be considered for recycling for bringing back to acceptable standards with replenishment/correction of deficiency instead of being treated as complete waste material in order to save costly materials provided the recycling technique is readily available at site.
- 2.7 The bituminous course to be relaid after recycling may preferably be of the same type as that reclaimed or of lower category specifications.
- 2.8 Availability of appropriate equipment and laboratory for carrying out recycling of bituminous course (s) and the overall economy of the total recycling operation compared to the alternative conventional sound engineering solution shall be the deciding factor for selection of the bituminous pavement courses for recycling.