

INTERIM ADVICE NOTE 90/07 Amendment No.1

GUIDANCE FOR THE USE OF EMERGENCY PATCHING MATERIALS

SUMMARY This interim advice note provides guidance for use of an emergency patching material when a surface has been damaged by a road traffic incident involving fire and other emergency pavement repairs

INSTRUCTIONS

This IAN replaces IAN 90/07 with immediate effect.

Contents

Section

Section 1 Background	3
Section 2: Materials to be Used	3
Section 3. Implementation	4
Section 4. Feedback	4
Section 5: Withdrawal	4
Section 6: Contacts	4
APPENDIX A – SPECIFICATION FOR HIGHWAY WORKS CLAUSE	5

1 Background

1.1 General

- 1.1.1 This Interim Advice Note provides information on the action to take when a traffic incident on the network leads to surface damage. The materials are intended primarily for emergency repair work, though they can fulfil other roles.
- 1.1.2 During traffic incidents the pavement may be left in certain states of distress, ranging from no visible or actual defect, to slight contamination with loss of chippings or binder degradation, through to extensive pavement defects covering square metres. The options for treatment currently range from do nothing, plan repairs to minor defects for a later date or effect immediate emergency repairs with lane closures and a unexpected loss of service to the customer in terms of carriageway availability and journey time reliability.
- 1.1.3 Emergency patching of fire damaged bituminous pavements shall be carried out with approved kits of proprietary Emergency Patching Materials (EPM) complying with Clause 995 of the Highways Agency's Specification for Highway Works.

1.2 Fire Damage

- 1.2.1 If the surface has been subject to fire damage, the bitumen and fuel will burn and carbonise. This will result in the aggregate being loosened and the surface integrity lost, potholes and hollows will form very quickly and the road will rapidly become unsafe.
- 1.2.2 The purposes of the emergency patching treatment is to consolidate any loose material, fill voids and provide a safe running surface until planned maintenance can be carried out.

1.3 Spillage

- 1.3.1 Modern quiet thin surfacing materials have a surface that is porous and allows liquids to penetrate. The depth of penetration depends on the material type and to a degree the extent that the surface has become clogged with detritus. Clogging happens less on high speed roads as tyre suction keeps the surface voids clean, at least in the wheel path.
- 1.3.2 Spillage of diesel and hydraulic oil on the surface softens the bitumen and makes the material prone to deformation [rutting]. No surface applied treatment can prevent this.
- 1.3.3 When this occurs the layer should be planned to removed and replaced at the earliest opportunity.
- 1.3.4 In the meantime if any surface loss has occurred, the emergency patching material described here may be used.

2 Materials to be used

- 2.1 The properties required of emergency patching treatments have been identified, and a specification clause produced which is included in Appendix A.
- 2.2 The new materials can be used in instances when an incident occurs before the rush hour and emergency repairs would require planning and paving resulting in work extending through the peak period.
- 2.3 The materials are rapid- set materials that can be applied to bituminous pavements and can allow lanes to be reopened very quickly, normally less than ½ hr.
- 2.4 Full repairs may still be required, but these can be undertaken at a pre-planned time to minimise disruption.

- 2.5 Potential suitable materials for this purpose have been evaluated and at this time two products are acceptable. *Rapid Asphalt Repair* from Jobling Purser and *Metaset EPM* from Stirling Lloyd
- 2.6 When EPM is used to treat fire damaged pavements the patching shall be removed from the network within 3 days by planned permanent repairs. The materials durability on motorway sites has not been fully examined but on the basis of laboratory work they should last at least 14 days and possibly much longer.

30/4/07

3 Implementation

- 3.1 This Interim Advice Note shall be used forthwith on all sites on the network which have been subject to surface damage as a result of a traffic incident.
- 3.2 The Interim Advice Note contains the new Clause 995 which will be included in the update to the Specification for Highway Works.

3.3 Emergency patching of fire damaged bituminous pavements shall be carried out with approved kits of proprietary Emergency Patching Materials (EPM) complying with Clause 995 of the Highways Agency's Specification for Highway Works.

4 Feedback

- 4.1 The usage and benefits of the EPMs is to be monitored. The Service Provider shall report monthly to the Area Performance Team Leader using a EPM Reporting Sheet that will be issued shortly.

4.2 If it is determined by the individuals on site that the EPM shall not be used when 3.3 indicates it should, then a full written explanation shall be provided within 2 working days giving the reasons behind this decision and providing recommendations on what should be done to ensure use in the future.

5 Withdrawal

- 5.1 This IAN will be withdrawn when Clause 995 is included within the published SHW.

6 Contacts

- 6.1 For any questions on the material please contact: For questions on the IAN please contact:

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APPENDIX A – SPECIFICATION FOR HIGHWAY WORKS CLAUSE

Clause 955 (01/07) Emergency Patching

General

1. Emergency patching shall be carried out with approved kits of proprietary Emergency Patching Materials (EPM) complying with this clause and the attached flow chart: Usage of Emergency Patching Material.
2. If it is determined by the individuals on site that the EPM shall not be used when Paragraph 1 indicates it should, then a full written explanation shall be provided within 2 working days giving reasons behind this decision and providing recommendations on what can be done to ensure EPM can be utilised in the future.

Surface Preparation and Usage

3. The surface of the road shall be brushed with a stiff broom mechanically or by hand to remove loose material. Any standing water shall be brushed away, leaving the surface damp.
4. The weather conditions should be such that they are not likely to deteriorate during the installation and curing, to the point that the material will not cure within 30 minutes.

Components of the Emergency Patching Material kit

5. The kit shall comprise all materials and tools to carry out emergency repair to the surface.
6. The kit shall contain all the constituents which, when mixed together, satisfy the performance requirement below. It shall contain sufficient coarse aggregate, minimum PSV 55, for application to the laid material to ensure a durable, skid resistant surface is produced.
7. The kit shall contain full and detailed instructions, including a cd/dvd video or a series of still photographs if necessary, to ensure that inexperienced operatives can prepare and lay the emergency patching material correctly.
8. No individual part of a kit shall weigh more than 20kg

Performance requirements for the patching material

9. The material shall have the following characteristics
 - a. It shall be capable of being mixed and spread by hand in thickness from 3mm to 30mm.
 - b. It shall cure to a strength such that it is capable of being trafficked by heavy vehicles without damage within 30minutes of installation when laid at surface temperatures between 3°C and 40°C.
 - c. None of the material shall debond or delaminate from the existing surface of the road for a period of at least 7 days from installation. Any subsequent delaminated material shall not be of sufficient size as to cause a hazard to traffic
 - d. It shall retain surface applied aggregate.

e. It shall have a minimum shelf life of 12 months.

10. The performance shall have been demonstrated at a site installation trial and by laboratory evaluation using the protocol below. An independent certificate of compliance shall be produced showing compliance with this Clause.

Laboratory evaluation of patching material

11. Specimens shall be prepared by coating a substrate manufactured with material complying with BBA Guidelines for High Friction Surfacing. The coating shall be in the range 3mm to 6mm thick.

Tensile Adhesion

12. A tensile adhesion test shall be carried out not more than 48 hrs after sample preparation.
13. A minimum value of 0.2N/mm^2 shall be achieved

Retained skid resistance after scuffing

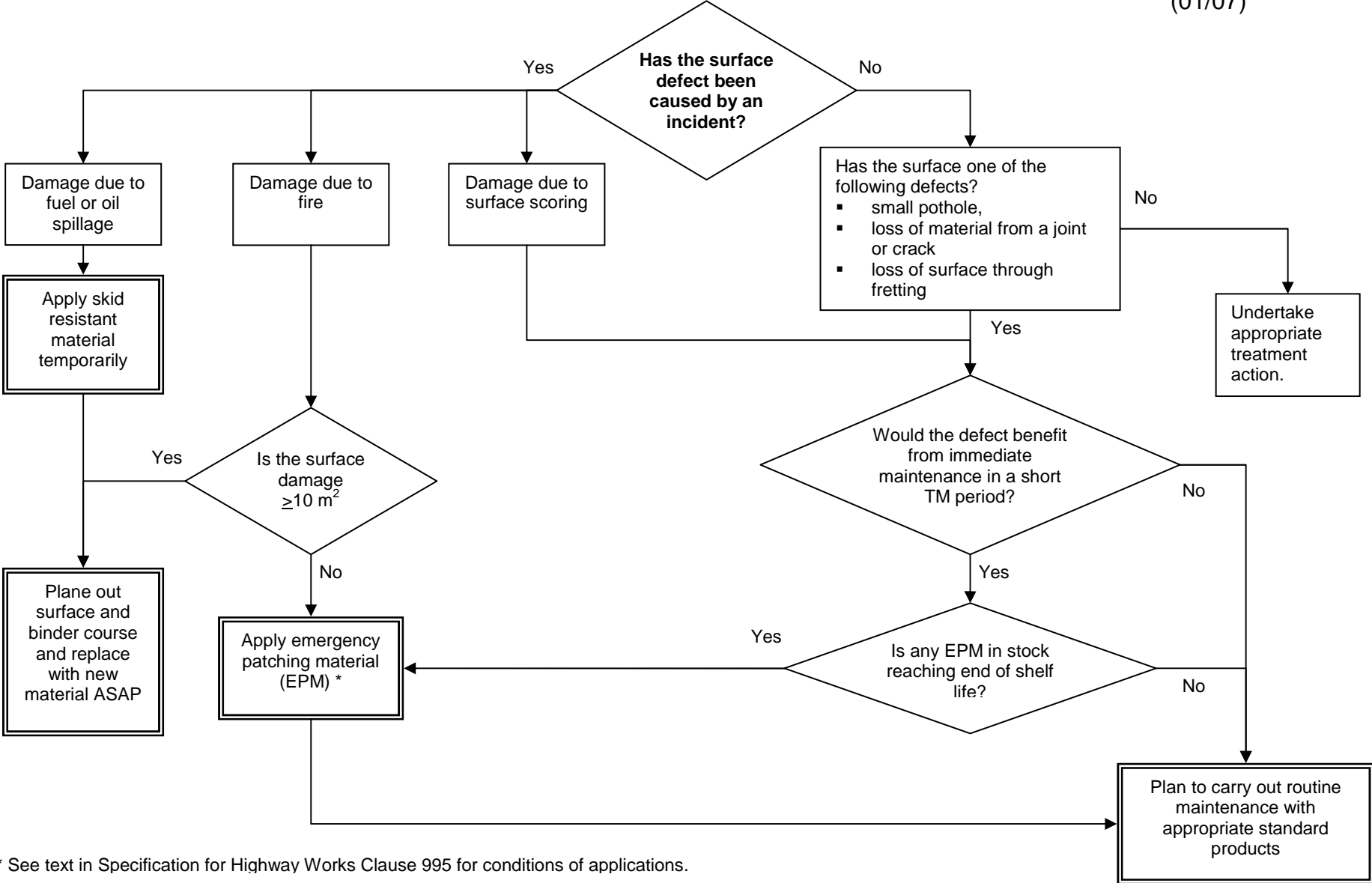
14. A scuffing test shall be carried out in accordance with BBA Guidelines for High Friction Surfacing except that the test temperature shall be 30°C and the test shall be carried out not more than 48 hrs after sample preparation.
15. A minimum retained Pendulum Test Value of 55 shall be achieved.
16. A minimum retained texture depth of 0.9 mm shall be achieved.

Erosion Index

17. Following the scuffing test carried in accordance with Paragraph 12 above, the Erosion Index shall be less than 5.

USAGE OF EMERGENCY PATCHING MATERIAL

SHW Clause 955
(01/07)



* See text in Specification for Highway Works Clause 995 for conditions of applications.