



HIGHWAY AUTHORITIES & UTILITIES COMMITTEE

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The Use of
Alternative Reinstatement Materials

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THE USE OF ALTERNATIVE REINSTATEMENT MATERIALS

Introduction

Since the Specification for the Reinstatement of Openings in Highways, hereinafter referred to as the Specification, was published in 2002 the demand for recycled materials has increased due to the European Waste Directive, increases in Landfill Tax and Aggregate Tax and utility companies' environmental policies.

Utilities are currently being offered various types of recycled products. At various locations in the UK, Appendix A9 trials of Alternative Reinstatement Materials (ARMs) have already been, and continue to be, successfully undertaken.

This document has been produced by the HAUC(UK) Specification Working Group to clarify various issues associated with Appendix A9 which could potentially impair the development and wider implementation of ARMs. A revised (third) edition of the Specification is currently being developed, however this is unlikely to be available for some time. This note has therefore been produced to give direction to street and road authorities and utilities prior to its publication.

To complement the government's drive towards maximising the use of recycled materials, and to encourage their use, this document offers advice on Appendix A9 trials and the use of recycled materials that are currently manufactured and used against the requirements of existing national specifications.

The Specification (SROH) remains statutory but HAUC(UK) recommends the additional use of this Note to allow full development and use of ARMs, until such time that a revised Specification is published.

Material Options

Many materials that were previously considered "Alternative" have become mainstream materials as they are produced and placed using established methods and standards and are therefore no longer "Alternative". Further guidance follows.

Hydraulic Mixtures

Hydraulic mixtures (HBMs) manufactured and used against the detailed requirements given in the Specification for Highway Works 800 series may be considered approved for national use without the need for trials with individual street and road authorities in accordance with Appendix A9 of the Specification. Various types of HBM with potential for use in reinstatements are described in the Specification for Highway Works (SHW) volume 1 clause 810 and table 8/9.

The appropriate construction thickness should be calculated using the upper limit of traffic capacity for the road category detailed in the SROH table S1.1 and by reference to HD 26/06 Fig 2.1, contained in volume 7, Section 2 of the Design Manual for Road and Bridge Works (DMRB).

The Specification for Highway Works and Design Manual for Road and Bridge works can be found at:

www.standardsforhighways.co.uk

The SHW is part of the Manual of Contract Documents for Highway Works (MCHW).

Foamed Bitumen Mixtures

Foamed bitumen mixtures manufactured and used against the detailed requirements given in clause 948 of the Specification for Highway Works, may be used as an alternative to BBA HAPAS approved PCSM. Foamed bitumen mixtures should be assessed as equivalent to 40/60 pen, 100/150 pen or 160/220 pen bitumen by measurement of their Elastic Stiffness (Indirect Tensile Stiffness Modulus) and reference to Table 1.

Approval	Minimum Property Requirement at 20° C for Equivalence to:		
	40/60 pen hot-laid Elastic Stiffness (MPa)	100/150 pen hot-laid Elastic Stiffness (MPa)	160/220 pen hot-laid Elastic Stiffness (MPa)
PCBC (20mm) Carriageway and Footway	4600	1850	1000

Table 1 - Elastic Stiffness / Bitumen Grade Equivalence

Alternatively, advice on the selection, design and use of Hydraulically Bound and Foamed Bitumen mixtures is given in TRL report TRL611.

All other “Alternative” materials must only be used by agreement with the Authority and following the trial requirements in Appendix A9 of the Specification.

Appendix A9 Trials

Currently Appendix A9 of the Specification details how to evaluate and gain approval to use an Alternative Reinstatement Material (ARM) from a street or road authority. It has become apparent that advice is required on how further approvals for the material should be sought from other street or road authorities.

The intention is that on completion of any ARM trial, the results and audit trail from the trial should be shared with other street and road authorities from whom permission for the use of the ARM is to be sought. The results should include details of the road types for which approval was granted and the full design of the reinstatement including layer depths of the other materials used in the reinstatement. Copies should also be sent to the HAUC(UK) Secretariat for onward distribution to the HAUC(UK) community or via the HAUC(UK) website. If the trial has been successful, permission for its use should **not** then be withheld, and can only be denied for engineering reasons. The utility seeking approval shall be advised in writing within one month of the reasons for any refusal.

Any agreement between the street or road authority and the utility for the use of the material shall follow the requirements of S1.6.1 of the Specification.

The audit trail from trials of ARMs should include all the information detailed in paragraph A9.5.3 of Appendix A9 of the SROH together with a quality plan and/or specification detailing the following:

- Training, Assessment and Competency of all personnel.
- Control of Raw Materials
 - Incoming Arisings
 - Binder
- Process Control
 - Material Screening
 - Inspection of Feed Material
 - Binder Feed Rate
 - Processing the Binder
 - Finished Material Stockpile Control
 - Stock Control
 - Daily Production Record
- Inspection, Testing and Frequency
 - In-process Inspection
 - Grading
 - CBR Testing
 - Compressive Strength Testing
 - Frost Heave Testing
 - Additional Testing
 - Compliance Limits
 - Frequency of Above Testing
 - Testing should normally be related to volume of production.
- Transport and Delivery
- Laying Operation
 - Where the Material is to be Used
 - Compaction Requirements
- Audit and Review
 - Internal Audits
 - Quality Plan Audits
 - Quality Reviews
 - Quality Control Methodology and Results
- Complaints Handling

The above list is for guidance and the testing required will vary from product to product.

END.