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Transport Infrastructure Ireland

TII Publications



Notes for Guidance on the Specification for Road Works Series NG 700 - Road Pavements - General

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Document Attributes

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For all documents that existed within the NRA DMRB or the NRA MCDRW prior to the launch of TII Publications, the NRA document reference used previously is listed above under 'historical reference'. The TII Publication Number also shown above now supersedes this historical reference. All historical references within this document are deemed to be replaced by the TII Publication Number. For the equivalent TII Publication Number for all other historical references contained within this document, please refer to the TII Publications website.

ROAD PAVEMENTS – GENERAL

Contents

<i>Clause</i>	<i>Title</i>	<i>Page</i>
NG 701	Pavement Construction	2
NG 702	Horizontal Alignments, Surface Levels and Surface Regularity of Pavement Courses	2
NG 706	Excavation, Trimming and Reinstatement of Existing Surfaces	3
NG 707	Breaking Up or Perforation of Redundant Pavement	4
NG	Sample Appendices.....	7

ROAD PAVEMENTS – GENERAL

NG 701 Pavement Construction

- 1 Unless otherwise agreed by the National Roads Authority, flexible, flexible composite and rigid pavement types as defined in NRA HD 25-26 should be permitted on new works and reconstruction work contracts. Also alternative component layers and layer materials within these three types should wherever possible be permitted.
- 2 Where a restriction of pavement types and/or their component layers/materials is considered necessary, details and justification are to be submitted to the National Roads Authority for approval.
- 3 Sheets 1, 2 and 3 should be completed by the compiler, included in Appendix 7/1 and referenced to the drawings.

The compiler should complete a separate Sheet 1 (Flexible or Flexible Composite Pavement) or Sheet 2 (Rigid Pavement), as appropriate, for each of the permitted Pavement Options (pavement type and component layers) for each length of carriageway or paved area.

- 4 Any Particular Requirements for Bituminous Bound Materials outlined in Table NG 7/1, for Unbound and Cement Bound Mixtures outlined in Table NG 7/2, and for Concrete Materials outlined in Table NG 7/3 should be detailed in Sheet 1 or Sheet 2 as appropriate.

Sheet 3 should be used to summarise the different Pavement Options that are permitted in the Contract.

- 5 Where the subgrade CBR value is estimated to be of a value requiring capping for one type of pavement (e.g. flexible or flexible composite) but not for others permitted for the same length of carriageway this should be clearly shown on Schedule 3 in Appendix 7/1 and allowed for in Appendix 6/7.

NG 702 Horizontal Alignments, Surface Levels and Surface Regularity of Pavement Courses

- 1 All levels of pavement courses are related to the specified level of the final road surface. Tolerances and limits in levels and irregularity are given in Tables 7/1 and 7/2 respectively. These should be strictly enforced to maintain a good ride and constant thickness of material. As they are based on the capabilities of most pavers to lay to a level they do not allow for any intentional reduction of the pavement thickness.
- 2 Surface levels of different pavement courses should be measured at points on a grid described in Appendix 7/1 in order to be able to determine the thickness of each course from the successive measurement of levels at the grid points. The spacing of the grid should normally be 10 m longitudinally and 2 m transversely. Where a greater degree of level control is required, e.g. at junctions of the carriageway with side roads, on slip roads and roundabouts, but not joints in the carriageway, the grid points should be at some lesser spacing. Measurement of surface levels at points on a grid does not mean that the surface can be outside the permitted tolerances at other points between the grid.
- 3 The tolerances on surface levels of surface courses, and concrete slabs are set in order to provide as good a ride as possible and avoid undulations of an individual or cyclic nature, which are of a wavelength outside the range detectable by the rolling straight-edge or equivalent apparatus. If, however, through a fault in the paving plant the whole surface as laid is consistently high over long lengths, it would be unnecessary to impose the limits of the true surface level tolerances, provided:

- i) Clearances under bridges are adequate, and allow for overlays.
 - ii) The drainage of the carriageway is not impaired.
 - iii) All tolerances except those on the final road surface design level comply with the Specification.
 - iv) The area affected is of such length as to provide an acceptable ride.
- 4** The limits for surface regularity of subbases under concrete pavement surface slabs is necessarily less when the slabs are laid in a single layer and only compacted by surface compacting beams. With a standard surcharge and a fixed degree of compaction with such equipment, upward variations in the subbase can be reflected in the surface when the concrete is fully compacted, whereas downward variations will result in lack of compaction locally. These tighter tolerances do not apply when internal vibration is used.
- 5** Two categories of road are given in Table 7/2, and for each different section of road the category must be stated in Appendix 7/1. The Employer will decide the category on the quality and quantity of traffic, on the road layout and potential speeds of traffic. Category B is generally for low speed (under 50 km/h) roads. Table 7/2 does not apply to materials laid in accordance with NRA Series 900 Clauses 7.1 and 10.2.2.
- 6** The surface should be thoroughly swept to remove extraneous matter before measurements are taken. All such measurements should be taken early, and any deficiencies in the pavement should be reported as soon as possible to allow the Contractor sufficient time to complete all remedial work and to allow for concrete to cure before opening the road to traffic. The rolling straight-edge should be used at about 2 km/hour. Some coarse textures can lead to incorrect readings if the surface is traversed too quickly. Areas shown not to comply with the Specification should be rectified as soon as possible and checked by a 3 m straight-edge or, for longer lengths, by the rolling straight edge or equivalent apparatus.
- 7** Traces from profilometers are useful in picking out particular areas for remedial work from the whole stretch shown not to comply with the Specification by the rolling straight-edge or equivalent apparatus.
- 8** For rectifying concrete slabs use of a bump cutter with a long wheel base is essential to produce an even plane without local overcutting. Grinding down either side of depressions may improve the riding quality, if they are small. Deeper depressions should normally be rectified by cutting out and refilling.

NG 706 Excavation, Trimming and Reinstatement of Existing Surfaces

- 1** Clause 706 describes a method of excavation and reinstatement of existing paved and unpaved surfaces:
- i) Where the Contractor is required to break into paved areas for the installation of utilities.
 - ii) Where the Contractor unavoidably has to break into work which he has carried out as part of the Works.
 - iii) Where he is required to break into paved areas existing prior to the Works being constructed.
 - iv) Where pavements are constructed to abut, overlay or join into existing pavements.
- 2** Instructions on the installation of utilities in roads designed to carry 120msa are given in a document entitled “Specification for the Reinstatement of Openings in National Roads” issued by the National Roads Authority.

- 3 As much information as possible should be provided in Appendix 7/2 and on the Drawings for 1(ii) and (iii) above, especially to show the areas and depth of pavement required to match levels between new and existing construction. The intention is to ensure that at least a new surface course should be provided over the minimum area of existing pavement as will avoid feathering below the minimum thickness of the layer, after preparation of the existing surface by scarifying and planing. Where existing and new concrete pavements abut or join into each other it is normal practice to use a bituminous pavement between the two sections, details of which should be given in Appendix 7/2.
- 4 Paved areas already constructed as part of the Works should only be excavated when it is necessary to carry out the Works or where no other practical means of completing the Works can be devised.
- 5 Advice and methods of reinstating pavements are given in the NRA Design Manual for Roads and Bridges. Volume 7: Pavement Design and Maintenance: Section 3: Pavement Maintenance Assessment and Renewals: Parts 3 and 4. Advice on Pavement Assessment, Repair and Renewal Principles for Bituminous Pavements are given in the NRA HD 31. Advice on maintenance and reinstatement of concrete pavements should be sought from NRA Network Management.

NG 707 Breaking Up or Perforation of Redundant Pavement

- 1 The compiler should identify the treatment of redundant pavement within landscape areas or within areas which are to revert to agricultural use – e.g. to be perforated or broken-up to render the pavement free draining. The maximum size of pieces of broken pavement should also be identified.

Table NG7/1 Particular Requirements for Bituminous Bound Materials

The following particular requirements should be included in Sheets 1 and 2 as appropriate.

Clause	Material / Technique	Particular Requirement
2.2	Regulating	Use of a bond coat for each layer of regulating course
3	Asphalt Concrete Products	Alternative requirements for binder (3.2.1) Coarse Aggregates for Surface Courses (3.2.2)
4	Hot Rolled Asphalt Products	Alternative requirements for binder (4.2.1) Properties of coated chippings (4.2.4)
5	Stone Mastic Asphalt Products	Mixture designations 5.1.2 and 5.1.4 not permitted on certain roads (5.1) Alternative requirements for binder (5.2.1) Coarse Aggregates for Surface Courses (5.2.2)
6	Porous Asphalt Products	Alternative requirements for binder (6.2.1) Coarse Aggregates for Surface Courses (6.2.2)
7	Surface Treatments: 7.1 – Microsurfacing 7.2 – Surface Dressing (Recipe Surface Dressing and Surface Dressing Product) 7.3 – High Friction Surfacing	Products covered by a harmonised European Standard shall be subject to a Type Approval Installation Trial (7.1.4.2, 7.2.3.5.2) High Friction Surfacing shall be subject to a provisional Type Approval Installation Trial (prTAIT) (7.3.3) The Producer shall continue to monitor the TAIT/prTAIT site and declare the period for which the performance characteristics have been retained (7.1.4.3, 7.2.3.5.3, 7.3.3.1)
8	Miscellaneous Products and Processes: 8.1 – Low Energy Bound Mixtures 8.2 – Retexturing 8.3 – Geotextiles 8.4 – Permanent Repair Material Systems 8.5 – Localised Surface Repair Systems 8.6 – Emergency Repair Materials Systems	LEBM shall be subject to an Initial Type Test (8.1.2) Retexturing, PRMS and LSRS shall be subject to a provisional Type Approval Installation Trial (prTAIT) (8.2, 8.4.2, 8.5.2) ERMS shall be replaced as soon as practicably possible after installation (8.6)
9	Reclaimed Asphalt	
10	Works	Weather Conditions specific to laying Porous Asphalt and Polymer Modified Stone Mastic Asphalt mixtures (10.1.5.1) Laying conditions specific to Hot Rolled Asphalt mixtures (10.1.7.1) Laying conditions specific to Porous Asphalt mixtures (10.1.7.2) Nominal and minimum compacted layer thicknesses for the particular mixtures (10.1.7) Compaction Control specific to Asphalt Concrete mixtures - Base and Binder Course (10.1.9.1) Compaction Control specific to Hot Rolled Asphalt Mixtures (10.1.9.2) Compaction Control specific to Stone Mastic Asphalt Mixtures (10.1.9.3) Compaction Control specific to Porous Asphalt Mixtures (10.1.9.4) Performance Requirements Specific to Hot Rolled Asphalt surface course mixtures (10.1.10.1) Performance Requirements Specific to Porous Asphalt (10.1.10.2) Use of Surfaces by Traffic - requirements specific to Porous Asphalt Mixtures (10.1.12)

Table NG7/2 Particular Requirements for Unbound and Cement Bound Mixtures

The following requirements are to be reflected in Sheets 1 and 2 as appropriate:

Clause	Description	Particular Requirement
802	Unbound Mixtures	Whether subbase material may be spread in more than one layer (802.4). Requirements for a Trafficking Trial (802.12 & 802.14).
809	Unbound Mixtures	Proximity of unbound materials to metallic structural elements (809.1).
820	Aggregates for HBM	Testing of existing pavement layer to be used to produce HBM to confirm compliance with sub-Clause 820.1. (820.2). Requirement for rock coarse aggregate (820.3 & Table 8/13).
821	Cement bound granular mixtures A (CBGM A)	Whether induced cracking is required (817.1). Laboratory mechanical performance category: C 3/4, C 5/6, C 8/10; T1, T2, T3 (821.5).
822	Cement bound granular mixtures B (CBGM B)	Whether induced cracking is required (817.1). Laboratory mechanical performance category: C 8/10, C 12/15, C 16/20, C 20/25; T3, T4, T5 (822.5). Crushed or broken particles Category and Los Angeles Coefficient (Table 8/13).
823	Cement bound granular mixtures C (CBGM C)	Whether induced cracking is required (817.1). Laboratory mechanical performance category: C 8/10, C 12/15, C 16/20, C20/25; T3, T4, T5 (823.6). Crushed or broken particles Category (Table 8/13).
824	Soil Cement (SC)	Laboratory mechanical performance requirements (824.1, 824.3 and 824.5).

Table NG7/3 Particular Requirements for Concrete Materials

The following requirements are to be reflected in Sheet 2 as appropriate:

Clause	Description	Particular Requirement
1001 to 1034 and 1044	Continuously Reinforced Concrete Slabs (CRCP)	Longitudinal steel reinforcement: (1008.9). Hot-applied sealant Type N1 or Type F1 (except for construction joints) (1017.2).
1001 to 1034	Continuously Reinforced Concrete Base (CRCB)	Longitudinal steel reinforcement: [1008.9]: Hot-applied sealant Type N1 or Type F1 [1017.2]:

NG Sample Appendices

NG SAMPLE APPENDIX 7/1: PERMITTED PAVEMENT OPTIONS

[Note to compiler: Complete one sheet per option - See NG 701]

Sheet 1 - Flexible or Flexible Composite Pavement Type A

1	Location:	General Requirement
2	Grid for checking surface levels of pavement courses, if different from the requirements of CI 702.4:	Long dim: N/A Trans dim: N/A
3	Surface regularity (CI 702.7 and CI 702.8):	Category of Road [A or B] Long Reg.: Trans Reg.:
4	Requirements for coarse aggregates - Polished Stone Value (PSV), Aggregate Abrasion Value (AAV) (Series 900 CI 3.2.2, 5.2.2, 6.2.2, 8.4.1.1, 8.6.1.1):	N/A
5	Requirements for pre-coated chippings - Polished Stone Value (PSV) for general use mixtures, PSV for mixtures for roundabouts, Aggregate Abrasion Value (AAV) (Series 900 CI 4.2.4):	N/A
6	Requirement for testing for Polished Stone value using the friction after polishing test (NRA HD 300 Clause 2.25)	[Yes/No]
7	Freezing and thawing (soundness) category if different from the requirements of Series 900 Tables 1, 4, 7, 10 and 17:	N/A
8	Compaction control and extraction of cores if different from the requirements of Series 900 CIs 10.1.9, 10.1.9.1, 10.1.9.2, 10.1.9.3, 10.1.9.4.	N/A
9	Requirements for monitoring resistance to permanent deformation of HRA (Series 900 CI. 10.1.10.1)	[Yes/No]
10	Sealant to be applied to the whole of any freestanding edge on the outside of the finished pavement on the low side of the camber (Series 900 CI 10.1.8):	[Yes/No]
11	Any tests additional to those required by IS EN 13108–20, IS EN 13108–21 or the relevant SRW (Series 900 CI 1.2 and 1.3):	N/A
12	Whether subbase material may be spread in more than one layer (CI 802.4).	[Yes/No]

Pavement Course	Clause	Mixture Designation / Material	Thickness (mm)	Particular Requirements [<i>Insert appropriate requirements from Tables NG 7/1 to 7/2</i>]
Surface Course				
Binder Course				
Base				
Sub-base				<i>[Whether material may be frost susceptible (801.4)].</i>
Total Pavement Thickness (excluding sub base)				

Notes:

- 1.0 Capping is not / is required as described in Appendix 6/7. [*Compiler to delete as appropriate*]
- 2.0 Bond coat to be applied to all surfaces including HBM layers.
- 3.0 [*Any specific requirements – e.g. Geotextile, High Friction surfacing, msa design requirements*].

NG SAMPLE APPENDIX 7/1: PERMITTED PAVEMENT OPTIONS

Sheet 2 - Rigid Pavement Type B

1	Location:		General Requirement	
2	Grid for checking surface levels of pavement courses, if different from the requirements of CI 702.4:	Long dim: Trans dim:	N/A N/A	
3	Surface regularity (CI 702.7 and CI 702.8):	Category of Road Long Reg.: Trans Reg.:	[A or B]	
4	Whether subbase material may be spread in more than one layer (CI 802.4):		[Yes/No]	
5	Size of Coarse Aggregates in Exposed Aggregate Concrete Surface (CI 1044.5 (i)):			
6	Polished Stone Value (PSV) of the coarse aggregate determined in accordance with IS EN 1097-8 (CI 1044.5):			
7	Aggregate Abrasion Value (AAV) of the coarse aggregate determined in accordance with IS EN 1097-8 (CI 1044.5):			
8	Macrotexture Depth Requirements (CI 1044.27):	Average Maximum Minimum		
Pavement Course	Clause	Mixture Designation / Material	Thickness (mm)	Particular Requirements [Insert appropriate requirements from Tables NG 7/1 to 7/3]
Surface Course				
Binder Course				
Continuously Reinforced Concrete Base (CRCB)				[Spacings for Transverse Joints (1009.1)] [Requirements for concrete conformity if different from sub-Clause 1001.2]
Sub-base				[Whether material may be frost susceptible (801.4)].
Total Pavement Thickness (excluding sub base)				

Notes:

- 1.0 Capping is not / is required as described in Appendix 6/7. [Compiler to delete as appropriate]
- 2.0 [Any specific requirements – e.g. Geogrid, High Skid resistant surfacing, msa design requirements].

NG SAMPLE APPENDIX 7/1: PERMITTED PAVEMENT OPTIONS

Sheet 3 – Summary of Alternatives

Sheet 3 - Summary of Alternatives					
Drawing Ref.	Location	Permitted Pavement Options			
<i>[e.g., Pav 702-705, etc.]</i>	<i>[e.g., Mainline, ramps, side road, etc. as appropriate]</i>	<i>[e.g., Flexible Pavement Type A, etc.]</i>	<i>[e.g., Flexible Pavement Type B, etc.]</i>	<i>[e.g., Flexible Composite Type A, etc.]</i>	<i>[e.g., Flexible Pavement with LEBM, etc.]</i>

NG SAMPLE APPENDIX 7/2: EXCAVATION AND REINSTATEMENT OF EXISTING SURFACES

[Note to compiler: Include here details of:]

- 1 Additional requirements for carrying out excavations in paved areas constructed as part of the Works [706.2].
- 2 Dimensions of excavations in paved areas constructed as part of the Works [706.2].
- 3 Requirements for backfilling of excavations if different from the appropriate Clauses in Series 500, 600, 1200, 1300 and 1400 [706.6].
- 4 Additional requirements for reinstatement of excavations in paved areas constructed as part of the Works [706.7].
- 5 Reinstatement of the concrete slab [706.7].
- 6 Locations of any trenches, pits, etc., which require to be excavated in existing paved surfaces in order to carry out the Works. Include references to any drawings giving further details [706.11].
- 7 Additional requirements for carrying out and reinstatement of excavations and trimming of existing paved areas not constructed as part of the Works [706.11].
- 8 Areas, thicknesses and types of new construction (regulating course and surface course) in overlays [706.12].
- 9 Details of junctions between concrete pavements and between concrete and bituminous pavements with reference to relevant RCDs [706.12].
- 10 Full depth repairs and reinstatements in Concrete Pavements
 - (i) Repair criteria if different from sub-Clause 1033.4
 - (ii) Requirement for full bay replacement [1033.7]
 - (iii) Reinstated subbase material [1033.9]
 - (iv) Stitched crack repair type [1033.12]
 - (v) Filling of slots [1033.13]
 - (vi) Longitudinal joint grooves to be re cut [1033.15]
 - (vii) Transverse joint grooves to be re cut [1033.16]
- 11 Joint Seals in Concrete Pavements
 - (i) Colour of the joint seal material [1017.1]

NG SAMPLE APPENDIX 7/3: SURFACE DRESSING PRODUCT (END PERFORMANCE)

SHEET 1: Information to be provided by the Purchaser

[Note to compiler: Complete one sheet per section] [Series 900 Clause 7.2.1 and 10.2.3.1]

- 1 Location and Site Category.
- 2 Minimum binder peak cohesion required. *[Series 900 Clause 7.2.3.1.1]*
- 3 Minimum declared PSV of chippings. *[Series 900 Clause 7.2.3.1.2 and NRA HD 36 Table 4.1]*
- 4 Maximum AAV of chippings. *[Series 900 Clause 7.2.3.1.2 and NRA HD 36 Table 4.2]*
- 5 Category for accuracy of spread of binder required. *[Series 900 Clause 7.2.3.2.2 and Table 22a]*
- 6 Category for accuracy of spread of chippings required. *[Series 900 Clause 7.2.3.2.3 and Table 22a]*
- 7 Category for tolerance on rate of spread of binder required. *[Series 900 Clause 7.2.3.2.2 and Table 22a]*
- 8 Category for tolerance on rate of spread of chippings required. *[Series 900 Clause 7.2.3.2.3 and Table 22a]*
- 9 Frequency of testing required for binder and chipping application. *[Series 900 Clause 7.2.3.2.2, 7.2.3.2.2 and Table 22b]*
- 10 Design Working Life. *[normally 5 years]*
- 11 Traffic Volume. *[cv/lane/day]*
- 12 Description of existing surface.
- 13 Pre-treatment *[type, design, process]*
- 14 Type of surface dressing permitted. *[Series 900 Clause 7.2.3.2.1 - for example: any, not single, racked-in, double or multiple-layered when tyre-road noise generation to be minimised]*
- 15 Macrotexture. *[Series 900 Clause 10.2.3.2.3 – minimum performance category]*
- 16 Category of fatting up, tracking and bleeding. (% Area - P₁) acceptable *[Series 900 Clause 10.2.3.2.3]*
- 17 Category of scabbing and tearing (% area affected - P₂) acceptable. *[Series 900 Clause 10.2.3.2.3]*
- 18 Category of fretting (% chipping loss - P₃) acceptable. *[Series 900 Clause 10.2.3.2.3]*
- 19 Category of streaking. (Length of streaking - P₄) acceptable *[Series 900 Clause 10.2.3.2.3]*
- 20 Specific weather requirements

[Note to compiler: If a number of sites are involved then it would be convenient to set out the above data in tabular form]

NG SAMPLE APPENDIX 7/3: SURFACE DRESSING PRODUCT (END PERFORMANCE)

SHEET 2: Information to be provided by the Producer

The Producer shall provide the following information with his tender:

- 1 A copy of IS EN ISO 9001 certificate showing at least the name of the Producer, the name of the certification body and the reference number and date of the certificate. A copy of the relevant part of the Producer's Quality Assurance (QA) document showing the appropriate scope (surface dressing product) and the quality management scheme described in Appendix A and limitations of the certification. The Purchaser will wish to inspect all or any of the Producer's QA documentation as part of the vendor assessment system and may wish to satisfy itself on the nature of the QA systems of the Producer's material suppliers.
- 2 Design proposal for surface dressing product for each location. *[Series 900 Clause 7.2.3]*
- 3 Declaration of the Design Working Life.
- 4 Proposed binder together with their DoP and CE Marking, product identification data and cohesivity data as specified along with any weather requirements specified by the binder manufacturer. *[Series 900 Clauses 7.2.3, 7.2.3.1.1, Appendix 7/3 sheet 1]*
- 5 Proposed source or sources of chippings, together their DoP and CE Marking, along with statement of properties including type, target grading, target flakiness, resistance to fragmentation, resistance to freezing and thawing - soundness, resistance to freezing and thawing - water absorption, PSV and AAV. *[Series 900 Clauses 7.2.3, 7.2.3.1.2, Appendix 7/3 sheet 1]*
- 6 A works proposal for each site or group of similar sites detailing the proposed method of executing the Works in accordance with the Specification. *[Series 900 Clause 10.2.3.2.1]*

[The Producer will be expected to commit enough resources to carry out the proposed design in one single continuous pass, for example if a double surface dressing is proposed on a heavily trafficked road then 2no. binder sprayers, 2no. chipping spreaders, 2no. rollers and 2no. sweepers will be a minimum requirement. The type of plant, age and number should be detailed for example, 2no. computer controlled sprayers three years old].
- 7 Proposals for reaction times for carrying out remedial measures where required, sweeping and site visits for monitoring purposes.
- 8 Contingency plans in the event of any breakdown of plant or failure of the surface dressing.
- 9 A TAIT certificate with CE marking a statement of any previous applications on roads with similar characteristics and traffic category to that to be treated in the Contract, containing the data as specified. *[Series 900 Clauses 7.2.3, 7.2.3.5, and Appendix 7/3 sheet 3]*
- 10 A statement of relevant experience and expertise, naming managers, supervisors and teams responsible for and allocated to the Contract.
- 11 For the performance specification, the results of any other tests or other data the Producer considers relevant. *[Series 900 Clauses 7.2.3.4, and 10.2.3.2.3]*

NG SAMPLE APPENDIX 7/3: SURFACE DRESSING PRODUCT (END PERFORMANCE)

SHEET 3: TAIT Certificate Information to be provided by the Producer

The Producer shall provide the TAIT Certificate containing at least the following information with his tender:

- 1 Company Name and Address:
- 2 QA reference number and certifying body:
- 3 TAIT reference number:
- 4 Location of TAIT (road number, start and end points, site category and description):
- 5 TAIT family:
- 6 Date of TAIT:
- 7 Name of Notified Body which has certified the surface dressing product:
- 8 Proprietary Name (if applicable):
- 9 Description of material:
- 10 Design procedure or method:
- 11 Relevant test results of materials used, FPC documentation for the section used for the TAIT:
- 12 Rate and accuracy of spread of both binder and chippings used for the TAIT:
- 13 Macrottexture depth after eleven months and before thirteen months (as measured):
- 14 Visual assessment results after eleven months and before thirteen months:
- 15 Colour retention (if applicable):
- 16 Other optional claims as declared by the Producer (e.g. reduced tyre-road noise emission, ability to accommodate a variable substrate, skid resistance if greater than PSV and macrottexture would indicate, etc.)
- 17 Period for which the performance characteristics have been retained:
- 18 Field of application for the particular material:
 - Traffic - maximum commercial vehicles per lane per day:
 - Traffic - total traffic per lane per day:
 - Traffic - Speed limit:
- 19 Constraints on application for the particular material:
 - Time of year:
 - Temperature (minimum/maximum, road/ambient):
 - Weather:
 - Variability of existing surface hardness or type:
 - Other as declared by the Producer:
- 20 Name and signature of company representative responsible for the TAIT:

NG sample APPENDIX 7/4: Bituminous Sprays

[Note to compiler: Include here details of:]

- 1 Specified Requirements for surface preparation in addition to Series 900 *[Series 900 Clause 10.1.4]*.

NG SAMPLE APPENDIX 7/5: ROAD PAVEMENTS: NRA ROAD CONSTRUCTION DETAILS

[Note to compiler: List the relevant Series 700 RCDs]

Clause No. Road Construction Detail Drg No.

701 RCD/700/1, 2, 3, 4, 5 & 6.

NG SAMPLE APPENDIX 7/6: BREAKING UP OR PERFORATION OF REDUNDANT PAVEMENT

[Note to compiler: Include here details of the treatment required, cross referencing to drawings as necessary].

NG SAMPLE APPENDIX 7/7: NOT USED

NG SAMPLE APPENDIX 7/8: NOT USED

NG SAMPLE APPENDIX 7/9: COLD-MILLING (PLANING) OF BITUMINOUS BOUND FLEXIBLE PAVEMENT

[Note to compiler: Include here details of:]

- 1 Cross reference to Appendix 7/2 listing the drawings identifying where cold-milling is required.
- 2 For each location where cold-milling is required specify whether profile planing or constant depth planing is required, giving details of the alignments or depths as appropriate *[Series 900 Clause 2.1]* The location references should correspond with those listed in Appendix 7/1.
- 3 Sweeping of areas prior to cold-milling. *[Series 900 Clause 10.1.1.1]*
- 4 Requirement for fine-milling – Yes/No *[NRA HD 300 Chapter 2, Clause 3.36 (v) and Clause 5.31 (v)]*

Schedule: Sweeping Areas Prior to Cold-milling	
Drawing No.	Location

NG SAMPLE APPENDIX 7/10: MICROSURFACING

SHEET 1: Information to be provided by the Purchaser

[Note to compiler: Complete one sheet per section][Series 900 Clause 7.1 and 10.2.2]

- 1 Location. [NRA HD 300 Clause 3.36 (i)]
- 2 Traffic Volume. [NRA HD 300 Clause 3.36 (ii) – cv/lane/day]
- 3 Traffic speed. [NRA HD 300 Clause 3.36 (iii) - 85 percentile and site speed limit]
- 4 Site Category. [NRA HD 300 Clause 3.36 (iii)]
- 5 Description of existing surface. [NRA HD 300 Clause 3.36 (iv)]
- 6 Pre-treatment. [NRA HD 300 Clause 3.36 (v) – responsibility, type, design, process]
- 7 Surface Preparation. [7.1.2.3 and NRA HD 300 3.36(v) – surface milling or retexturing where applicable]
- 8 Type of microsurfacing permitted – if different from Series 900 requirements [Series 900 Clause 7.1.2.1 and NRA HD 300 3.36 (vi)]
- 9 Thickness. [NRA HD 300, 3.36 (vii) - where applicable]
- 10 Minimum declared PSV of chippings. [Series 900 Clause 7.1.1.2, NRA HD 300 Clause 3.36 (ix) and NRA HD 36 Table 4.1]
- 11 Maximum AAV of chippings. [Series 900 Clause 7.1.1.2, NRA HD 300 Clause 3.36 (ix) and NRA HD 36 Table 4.2]
- 12 Macrotexture. [Series 900 Clause 10.2.2.2, NRA HD 300 Clause 3.36 (xi) – minimum performance category]
- 13 Design Working Life. [Series 900 Clause 10.2.2.2, NRA HD 300 Clause 3.36 (x) – normally 5 years]
- 14 Category of bleeding, fatting up and tracking. (% area affected - P₁) acceptable [NRA HD 300 Clause 3.36 (xii)]
- 15 Category of delamination, loss of aggregate, wearing, lane joint gaps, rutting or slippage (% area affected - P₂) acceptable. [NRA HD 300 Clause 3.36 (xii)]
- 16 Category of corrugation, bumps and ridges (% area affected - P₃) acceptable. [NRA HD 300 Clause 3.36 (xii)]
- 17 Category of groups of small and repetitive defects in not more than rectangles (n). (% area affected - P_{4(n)}) acceptable [NRA HD 300 Clause 3.36 (xii)]
- 18 Category of linear defects (m per 100m) acceptable [NRA HD 300 Clause 3.36 (xiii)]
- 19 Surface shear strength test required – Yes/No. [Series 900 Clause 7.1.2.5 and NRA HD 300 Clause 3.36 (xiv)]
- 20 Surface shear strength test frequency - after curing and at 1 year where applicable [NRA HD 300 3.36(xiii) and NRA HD 300 Clause 3.36 (xiv)]

[Note to compiler: If a number of sites are involved then it would be convenient to set out the above data in tabular form]

NG SAMPLE APPENDIX 7/10: MICROSURFACING

SHEET 2: Information to be provided by the Producer:

The Producer shall provide the following information with his tender:

- 1 A copy of IS EN ISO 9001 certificate showing at least the name of the Producer, the name of the certification body and the reference number and date of the certificate. A copy of the relevant part of the Producer's Quality Assurance (QA) document showing the appropriate scope (microsurfacing) and the quality management scheme described in Appendix A and limitations of the certification. The Purchaser will wish to inspect all or any of the Producer's QA documentation as part of the vendor assessment system and may wish to satisfy itself on the nature of the QA systems of the Producer's material suppliers.
- 2 Design proposal for microsurfacing for each location. *[Series 900 Clause 7.1]*
- 3 Declaration of the Design Working Life.
- 4 Proposed binder and bond coat together with their DoP and CE Marking, product identification data and cohesivity data as specified along with any weather requirements specified by the binder manufacturer. *[Series 900 Clause 7.1.1.1, Appendix 7/3 sheet 1]*
- 5 Proposed source or sources of aggregate, together their DoP and CE Marking, along with statement of properties including type, target grading, declared PSV and AAV *[Series 900 Clauses 7.1, 7.1.1.2, Appendix 7/10 sheet 1]*
- 6 Proposed source or sources of fine aggregate, together their DoP and CE Marking, including target grading and other constituents together with statements of properties. *[Series 900 Clause 7.1.2.2]*
- 7 A works proposal for each site or group of similar sites detailing the proposed method of executing the Works in accordance with the Specification. *[Series 900 Clause 10.2.2.1]*

[The Producer will be expected to commit enough resources to carry out the proposed design; the type and age of the Microsurfacing machine should be detailed]
- 8 Proposals for reaction times for carrying out remedial measures where required, sweeping and site visits for monitoring purposes.
- 9 Contingency plans in the event of any breakdown of plant or failure of the microsurfacing.
- 10 A TAIT certificate with CE marking a statement of any previous applications on roads with similar characteristics and traffic category to that to be treated in the Contract, containing the data as specified. *[Series 900 Clauses 7.1, 7.1.4 and Appendix 7/10 sheet 3]*
- 11 A statement of relevant experience and expertise, naming managers, supervisors and teams responsible for and allocated to the Contract.
- 12 For the performance specification, the results of any other tests or other data the Producer considers relevant. The following information should be provided, if available. *[Series 900 Clauses 7.1.3, 10.2.2.2, and NRA HD 300 Clause 3.36 (xv)]*
 - (i) Test method for binder content.
 - (ii) Test for thickness of microsurfacing.
 - (iii) Trafficability time, including method of test. *[Appendix 7/10, sheet 1 preferred]*
 - (iv) Bond test results.

NG SAMPLE APPENDIX 7/10: MICROSURFACING

SHEET 3: TAIT Certificate: Information to be provided by the Producer

The Producer shall provide the TAIT Certificate containing at least the following information with his tender:

- 1 Company Name and Address:
- 2 QA reference number and certifying body:
- 3 TAIT reference number:
- 4 Location of TAIT (road number, start and end points):
- 5 Date of TAIT:
- 6 Name of Notified Body which has certified the microsurfacing product:
- 7 Proprietary Name (if applicable):
- 8 Description of material:
- 9 Design procedure or method:
- 10 Relevant test results of materials used, FPC documentation for the section used for the TAIT:
- 11 Material thickness (if applicable):
- 12 Macrotexture depth after eleven months and before thirteen months (as measured):
- 13 Visual assessment results after eleven months and before thirteen months:
- 14 Colour retention (if applicable):
- 15 Other optional claims as declared by the Producer (e.g. reduced tyre-road noise emission, ability to accommodate a variable substrate, skid resistance if greater than PSV and macrotexture would indicate, etc.)
- 16 Period for which the performance characteristics have been retained:
- 17 Field of application for the particular material:
 - Traffic - maximum commercial vehicles per lane per day:
 - Traffic - total traffic per lane per day:
 - Traffic - Speed limit:
- 18 Site category and description, see NRA HD 36 for categories:
- 19 Constraints on application for the particular material:
 - Time of year:
 - Temperature (minimum/maximum, road/ambient):
 - Weather:
 - Variability of existing surface hardness or type:
 - Other as declared by the Producer:
- 20 Name and signature of company representative responsible for the TAIT:

NG SAMPLE APPENDIX 7/11: HIGH FRICTION SURFACING

SHEET 1: Information to be provided by the Purchaser

[Note to compiler: Complete one sheet per section] [Series 900 7.3.1 and 10.2.4]

- 1 Location *[NRA HD 300 Clause 5.31 (i)]*
- 2 Traffic Volume. *[NRA HD 300 Clause 5.31 (ii) – cv/lane/day]*
- 3 Site Category and Investigatory Level. *[NRA HD 300 Clause 5.31 (iii)]*
- 4 Description of existing surface. *[NRA HD 300 Clause 5.31 (iv)]*
- 5 Pre-treatment. *[NRA HD 300 Clause 5.31 (v) – responsibility, type, design, process]*
- 6 Length of application if greater than 50m *[NRA HD 300 Clause 5.31 (vi)]*
- 7 Type of binder – if different from Series 900 *[Series 900 Clause 7.3.2.1 and NRA HD 300 Clause 5.31 (vii)]*
- 8 Minimum declared PSV of chippings – if different from Series 900 requirements. *[Series 900 Clause 7.3.2.2, Table 23a and Table 23b, and NRA HD 300 Clause 5.31 (viii)]*
- 9 Maximum AAV of chippings – if different from Series 900 requirements. *[Series 900 Clause 7.3.2.2, Table 23a and Table 23b, and NRA HD 300 Clause 5.31 (viii)]*
- 10 Design Working Life. *[Series 900 Clause 10.2.4.7, NRA HD 300 Clause 5.31 (ix) – normally 5 years]*
- 11 Macrotexture *[Series 900 Clause 7.3.3.2 and HD 300 Clause 5.31(x)]*
- 12 Level of fatting up (% area affected – P₁) acceptable *[Series 900 Clause 7.3.3.1 and HD 300 Clause 5.31 (xi)]*
- 13 Level of delamination (% area affected – P₂) acceptable *[Series 900 Clause 7.3.3.1 and HD 300 Clause 5.31 (xi)]*
- 14 Level of fretting (% area affected – P₃) acceptable *[Series 900 Clause 7.3.3.1 and HD 300 Clause 5.31 (xi)]*
- 15 Level of grinning (% area affected – P₄) acceptable *[Series 900 Clause 7.3.3.1 and HD 300 Clause 5.31 (xi)]*
- 16 Pull Off test frequency - after curing and at 1 year where applicable *[NRA HD 300 Clause 5.31(xii)]*

[Note to compiler: If a number of sites are involved then it would be convenient to set out the above data in tabular form]

NG SAMPLE APPENDIX 7/11: HIGH FRICTION SURFACING

SHEET 2: Information to be provided by the Contractor

The Producer shall provide the following information with his tender:

- 1 A copy of IS EN ISO 9001 certificate showing at least the name of the Producer, the name of the certification body and the reference number and date of the certificate. A copy of the relevant part of the Producer's Quality Assurance (QA) document showing the appropriate scope (high friction surfacing) and the quality management scheme described in Appendix A and limitations of the certification. The Purchaser will wish to inspect all or any of the Producer's QA documentation as part of the vendor assessment system and may wish to satisfy itself on the nature of the QA systems of the Producer's material suppliers.
- 2 Declaration of the Design Working Life.
- 3 Proposed binder and bond coat together along with any weather requirements specified by the binder manufacturer. [*Series 900 Clause 7.3.1, 7.3.2.1, Appendix 7/11 sheet 1*]
- 4 Proposed source of manufactured and/or natural aggregate(s), together with associated DoP and CE Marking, along with statement of properties including type, target grading, particle angularity, particle density, resistance to freezing and thawing – water absorption, PSV and AAV. [*Series 900 Clause 7.3.2.2, Table 23a and Table 23b, Appendix 7/11 sheet 1*]
- 5 A works proposal for each site or group of similar sites detailing the proposed method of executing the Works in accordance with the Specification. [*Series 900 Clause 10.2.4.1*]

[The Producer will be expected to commit enough resources to carry out the proposed design; the type and age of the high friction surfacing should be detailed]
- 6 Proposals for reaction times for carrying out remedial measures where required, sweeping and site visits for monitoring purposes. [*Series 900 Clause 10.2.4.7*]
- 7 Contingency plans in the event of any breakdown of plant or failure of the high friction surfacing. [*Series 900 Clause 10.2.4.7*]
- 8 A prTAIT certificate with a statement of any previous applications on roads with similar characteristics and traffic category to that to be treated in the Contract, containing the data as specified. [*Series 900 Clauses 7.3, 7.3.3, 7.3.4 and Appendix 7/11 sheet 3*]
- 9 A statement of relevant experience and expertise, naming managers, supervisors and teams responsible for and allocated to the Contract.
- 10 For the performance specification, the results of any other tests or other data the Producer considers relevant. [*Series 900 Clauses 7.3.3, 10.2.4.6, and NRA HD 300 Clause 5.31 (xiii)*]
- 11 Proposals for product/system storage at and transport to site [*Series 900 Clause 10.2.4.3*]
- 12 Weather requirements for installation of high friction surfacing and contingency plans in the event of any adverse weather impacting the application of high friction surfacing. [*Series 900 Clause 10.2.4.4*]
- 13 Proposals for time period between completion of works and opening to live traffic. [*Series 900 Clause 10.2.4.7*]

NG SAMPLE APPENDIX 7/11: HIGH FRICTION SURFACING

SHEET 3: prTAIT Certificate: Information to be provided by the Contractor

The Contractor shall provide the prTAIT Certificate containing at least the following information with his tender:

- 1 Company Name and Address:
- 2 QA reference number and certifying body:
- 3 prTAIT reference number:
- 4 Location of prTAIT (road number, start and end points):
- 5 prTAIT family [*NRA HD 301 Table 2C.1*]:
- 6 Date of prTAIT:
- 7 Name of Notified Body which has certified the high friction surfacing product/system:
- 8 Proprietary Name (if applicable):
- 9 Description of product/system (method of application, binder type, aggregate grade, etc. For hot screeded thermoplastic, include measured indirect tensile strength):
- 10 Design procedure or method:
- 11 Storage and transportation requirements:
- 12 Rate and tolerance of spread of both binder and aggregate:
- 13 Macrotexture depth after eleven months and before thirteen months (as measured):
- 14 Visual assessment results after eleven months and before thirteen months:
- 15 Colour retention (if applicable):
- 16 Other optional claims as declared by the Producer (e.g. reduced tyre-road noise emission, ability to accommodate a variable substrate, skid resistance if greater than PSV and macrotexture would indicate, etc.)
- 17 Period for which the performance characteristics have been retained:
- 18 Time period between completion of works and opening to live traffic [*Series 900 Clause 10.2.4.7*]:
- 19 Constraints on application for the particular product/system:
 - Time of year:
 - Temperature (minimum/maximum, road/ambient):
 - Weather:
 - Variability of existing surface hardness or type:
 - Other as declared by the Producer:
- 20 Name and signature of company representative responsible for the prTAIT:

NG SAMPLE APPENDIX 7/12: LOW ENERGY BOUND MIXTURES

SHEET 1: Information to be provided by the Purchaser

[Note to compiler: Complete one sheet per section] [Series 900 Clauses 8.1 and 10.3.1]

- 1 Location. *[NRA HD 300 Clause 6.57 (i)]*
- 2 Design traffic. *[NRA HD 300 Clause 6.57 (ii) – msa]*
- 3 Description of existing surface. *[NRA HD 300 Clause 6.57 (iii)]*
- 4 Existing pavement structure. *[NRA HD 300 Clause 6.57 (iv)]*
- 5 Existing pavement subgrade. *[NRA HD 300 Clause 6.57 (v)]*
- 6 Existing pavement material. *[NRA HD 300 Clause 6.57 (vi)]*
- 7 Binder requirements if different from Series 900. *[Series 900 Clause 8.1.1.1 and NRA HD 300 Clause 6.57 (vii)]*
- 8 The conditioning requirements (e.g. temperature, duration) for representative specimens prior to testing if different from 40 °C for 72 hours. *[NRA HD 300 Clause 6.57 (viii)]*
- 9 Sealant required on completion of compaction - Yes/No. *[Series 900 Clause 10.3.1.9 and NRA HD 300 Clause 6.57 (ix)]*
- 10 Rate of spread of sealant required if different from Series 900. *[Series 900 Clause 10.3.1.9 and NRA HD 300 Clause 6.57 (vi)]*
- 11 End performance testing regime if different from Series 900. *[Series 900 Clause 10.3.1.11 and NRA HD 300 Clause 6.57 (x)]*

[Note to compiler: If a number of sites are involved then it would be convenient to set out the above data in tabular form]

NG SAMPLE APPENDIX 7/12: LOW ENERGY BOUND MIXTURES

SHEET 2: Information to be provided by the Producer

The Producer shall provide the following information with his tender:

- 1 A copy of IS EN ISO 9001 certificate showing at least the name of the Producer, the name of the certification body and the reference number and date of the certificate. A copy of the relevant part of the Producer's Quality Assurance (QA) document showing the appropriate scope (LEBM) and the quality management scheme described in Appendix A and limitations of the certification. The Purchaser will wish to inspect all or any of the Producer's QA documentation as part of the vendor assessment system and may wish to satisfy itself on the nature of the QA systems of the Producer's material suppliers.
- 2 Proposed binders together with their DoP and CE Marking, product and identification data as specified along with any weather requirements specified by the binder manufacturer. *[Series 900 Clauses 8.1.1, 8.1.1.1, Appendix 7/12 sheet 1]*
- 3 Proposed source or sources of aggregate and filler together with their DoP and CE Marking along with statement of properties including type, fines content, grading, flakiness, resistance to fragmentation, and resistance to freezing and thawing - water absorption and soundness. *[Series 900 Clauses 8.1.1, 8.1.1.2, 8.1.1.3]*
- 4 A proposal for each mixture detailing the proposed method of consistently producing the material and calibration certificates for the plant flow meters to be used in the Works. *[Series 900 Clauses 8.1.2, 8.1.2.1]*
- 5 A works proposal for each site or group of similar sites detailing the proposed method of executing the Works in accordance with the Specification. *[Series 900 Clause 10.3.1.2]*

[The Contractor will be expected to commit enough resources to carry out the proposed design in one single continuous pass, for example if in situ recycling is proposed then a water tanker coupled to a recycler followed by grader and compactor in succession will be the minimum requirement for 1no. lane. The type of plant, age and number should be detailed for example, 1no. computer controlled recycler three years old].
- 6 Contingency plans in the event of any adverse weather impacting the laying or production of the low energy bound mixture. *[Series 900 Clause 10..3.1.4]*
- 7 Contingency plans in the event of any breakdown of plant or failure of the low energy bound mixture.
- 8 A statement of relevant experience and expertise, naming managers, supervisors and teams responsible for and allocated to the Contract.
- 9 The results of any other tests or other data the Producer considers relevant. *[NRA HD 300 Clause 6.57 (xi)]*

NG SAMPLE APPENDIX 7/21: RECIPE SURFACE DRESSING

SHEET 1: Information to be provided by the Purchaser

[Note to compiler: Complete one sheet per section] [Series 900 Clauses 7.2.1 and 0.2.3.1]

- 1 Location and Site Category.
- 2 Traffic Volume. *[cv/lane/day]*
- 3 Description of existing surfacing
- 4 Pre-treatment. *[responsibility, type, design, process]*
- 5 Type of surface dressing required. *[Series 900 Clause 7.2.2.2]*
- 6 Minimum binder peak cohesion required.
- 7 Rate of spread of binder. *[Series 900 Clause 10.2.3.1.3]*
- 8 Requirements for chippings if not different to the requirements of Series 900 *[Series 900 Clause 7.2.2.1.2, Table 17 and 18]*
- 9 Chipping size(s) required.
- 10 Minimum declared PSV of chippings. *[Series 900 Clause 7.2.2.1.2 and NRA HD 36 Table 4.1]*
- 11 Maximum AAV of chippings. *[Series 900 Clause 7.2.2.1.2 and NRA HD 36 Table 4.2]*
- 12 Category for accuracy of spread of binder required. *[Series 900 Clause 10.2.3.1.3 and Table 22a]*
- 13 Category for accuracy of spread of chippings required. *[Series 900 Clause 10.2.3.1.4 and Table 22a]*
- 14 Category for tolerance on rate of spread of binder required. *[Series 900 Clause 10.2.3.1.3 and Table 22a]*
- 15 Category for tolerance on rate of spread of chippings required. *[Series 900 Clause 10.2.3.1.4 and Table 22a]*
- 16 Frequency of testing required for binder and chipping application. *[Series 900 Clauses 10.2.3.1.3, 10.2.3.1.4 and Table 22b]*
- 17 Time for the Works to be carried out. *[Series 900 Clause 10.2.3.1.8 - if outside April and August period]*
- 18 Specific weather requirements. *[Series 900 Clauses 10.2.3.1.3, 10.2.3.1.8 – for example: Limitations of work in adverse weather]*
- 19 Period for monitoring dressing if different from minimum of 2 hours. *[Series 900 Clause 10.2.3.1.10]*
- 20 Minimum time period before unrestricted traffic may use the surface dressing. *[Series 900 Clause 10.2.3.1.10]*

[Note to compiler: If a number of sites are involved then it would be convenient to set out the above data in tabular form]

NG SAMPLE APPENDIX 7/21: RECIPE SURFACE DRESSING

SHEET 2: Information to be provided by the Producer

The Producer shall provide the following information with his tender:

- 1 A copy of IS EN ISO 9001 certificate showing at least the name of the Producer, the name of the certification body and the reference number and date of the certificate. A copy of the relevant part of the Producer's Quality Assurance (QA) document showing the appropriate scope (recipe surface dressing) and the quality management scheme described in Appendix A and limitations of the certification. The Purchaser will wish to inspect all or any of the Producer's QA documentation as part of the vendor assessment system and may wish to satisfy itself on the nature of the QA systems of the Producer's material suppliers.
- 2 Proposed binders together with their DoP and CE Marking, product identification data and cohesivity data as specified along with any weather requirements specified by the binder manufacturer. [*Series 900 Clauses 7.2.2, 7.2.2.1.1, Appendix 7/3 sheet 1*]
- 3 Proposed source or sources of chippings together their DoP and CE Marking along with statement of properties including type, target grading, target flakiness, resistance to fragmentation, resistance to freezing and thawing - soundness, resistance to freezing and thawing - water absorption, PSV and AAV. [*Series 900 Clauses 7.2.2, 7.2.2.1.2, Appendix 7/3 sheet 1*]
- 4 Calibration certificate for proposed binder sprayer to be used in the Works, to confirm compliance with the categories specified in Appendix 7/21. [*Series 900 Clause 10.2.3.1.3*]
- 5 Calibration certificate for proposed chipping spreader to be used in the Works, to confirm compliance with the categories specified in Appendix 7/21. [*Series 900 Clause 10.2.3.1.4*]
- 6 A works proposal for each site or group of similar sites detailing the proposed method of executing the Works in accordance with the Specification. [*Series 900 Clause 10.2.3.1.1*]

[The Producer will be expected to commit enough resources to carry out the proposed design in one single continuous pass, for example if a double surface dressing is proposed on a heavily trafficked road then 2no. binder sprayers, 2no. chipping spreaders, 2no. rollers and 2no. sweepers will be a minimum requirement. The type of plant, age and number should be detailed for example, 2no. computer controlled sprayers three years old].

- 7 A statement of previous use of the combinations of binder and chippings proposed for use together with any measures or tests undertaken to ensure their compatibility. [*Series 900 Clauses 7.2.2.1, 10.2.3.1.1, 10.2.3.1.3, 10.2.3.1.4 and Tables 15, 17 and 18; for example - the use of adhesion agents or cohesion properties (pendulum tests)*]
- 8 Proposals for traffic control and aftercare for each site, and reaction times for carrying out remedial measures, sweeping and site visits. [*Series 900 Clauses 10.2.3.1.1, 10.2.3.1.10*]
- 9 Contingency plans in the event of any breakdown of plant or failure of the surface dressing.
- 10 A statement of relevant experience and expertise, naming managers, supervisors and teams responsible for and allocated to the Contract.



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