

TNZ P/3: 1995

SPECIFICATION FOR FIRST COAT SEALING

1. SCOPE

The first coat seal shall be applied in accordance with this specification upon the finished surface of compacted granular basecourse pavement.

2. EDGE DEFINITION AND TOLERANCE

The edges of the sealing course shall be clearly defined by string lines. Ragged or irregular edges to the sealing will not be permitted. No peg or spike shall be left as a danger to traffic.

The width of the seal coat shall not be less than the width defined in the job specification and no payment will be made for any excess width greater than 100 mm.

3. SEALING PERIOD

Sealing in accordance with this specification may be carried out during any period of the year when fair settled weather conditions are being experienced, provided that the shade air temperature within the area being sealed is not less than 10°C.

4. WORKING HOURS

The Contractor shall not work on the site on Public Holidays except for the work described in Clauses 26, 27 and 28, unless with the specific approval of the Engineer.

All binder spraying shall be completed at least 90 minutes before the official time of sunset and all plant shall be clear of the sealed area by sunset, except with the specific approval of the Engineer.

5. USE OF PRIVATE LAND

Additional to the provisions of Clause 8.2 of the General Conditions of Contract, the Contractor should make his own arrangements in respect of any use of private land outside the limits of the contract works and he shall be responsible for any damage or claims for compensation arising from such use. Before the expiry of the maintenance period, as defined in the Special Conditions of Contract, the Contractor shall submit letters form any landowners concerned certifying that all claims for compensation due to

the use of the land by the Contractor have been discharged to the satisfaction of the landowners.

6. CONSTRUCTION PLANT

All plant items shall be in good mechanical condition and in particular no fault that could present a hazard shall be permitted. Oil, water or fuel leaks will render a plant item unacceptable.

Chip spreading equipment shall be capable of spreading the aggregate evenly, at a controlled rate, over a width of at least 2.4 m and shall be fitted with a positive means of adjusting the width of spread. Control of spread width shall be adjustable only from the side of the spreader. The design of the spreading equipment and the operating speed of the spreading vehicle shall ensure that the sealing chip is dropped in such a way that it does not tumble on impact with the sprayed surface.

The rollers shall be self propelled and have a minimum weight when operating of not less than seven tonnes, spread over at least seven smooth pneumatic tyred, wheels. Any roller exceeding 13 tonnes shall be deemed, for the purpose of this specification, to weight 13 tonnes. The tyres shall be inflated to not less than 600 kPa and adequate means of checking tyre pressures on site shall be provided by the Contractor. An approved steel wheeled roller as specified in Clause 22 may be acceptable for not more than the first two passes required for the initial rolling.

All rollers to be used shall be weighed at the Contractor's expense in the presence of the Engineer or his representative before the work within the contract is commenced. The ballast quantity on each roller at the time of the weighing will be recorded together with registration and plant numbers.

Specific models of rubber-coated vibrating drum rollers may be approved, with specified limits and conditions, by the General Manager of Transit New Zealand to be used to obtain the rolling as specified in Clause 22 to be equivalent to pneumatic tyred rollers as specified above. Contractors shall produce written evidence of the approval for use of any rubber-coated vibrating drum roller. Such approved rollers in service or proven to be on form order prior to 1 November 1984 only shall be accepted to obtain the total rolling specified in Clause 22.

Bitumen distributors shall possess a current Certificate of Compliance with the BCA E/2 Specification for Performance of Bitumen Distributors administered by the New Zealand Bitumen Contractors' Association Inc. There shall be an operator carried at the rear of the distributor to operate the functions designated in Clauses 11.3.2 and 11.3.3 of that specification, unless otherwise approved in writing by the Engineer.

7. CONDITION OF SURFACE FOR SEALING

Where the construction of the basecourse is not part of the contract, the Engineer will define the dates of handing over the lengths of road to be sealed after considering the Contractor's proposed timing and sequence of operations. The road will be handed over to the Contractor in good condition, with not less than two consecutive working days ahead, ready to be prepared for sealing unless otherwise stated in the job specification. From the date of handing over, any work necessary to retain or reinstate the surface shall be at the Contractor's expense.

Any loose or caked material on the surface shall be removed and disposed of without disturbing the compacted basecourse. The surface shall then be swept clean of loose aggregate, dust, dirt and other deleterious matter and the sweepings shall be removed to the satisfaction of the Engineer. The surface of the road at the time of sealing shall be clean, reasonably dry and free of ice or frost, tightly compacted and shall present a clean stone mosaic appearance.

8. ASPHALT CEMENT

The asphalt cement shall be 180/200 penetration grade and shall meet the requirements defined for that grade in TNZ M/1, Specification for Asphaltic Bitumens.

9. ADHESION AGENT

An adhesion agent approved and blended in accordance with the requirements of TNZ M/13 Specification for Adhesion Agents shall be incorporated in the sealing binder.

9.1 Effect on Viscosity

Adhesion agents have a viscosity reducing effect on bitumen equal to that of kerosene and automotive gas oil (AGO). This is taken into account when determining the total amount of diluent required in Table 1.

10. FLUXING

The asphalt cement shall be blended with the quantity of automotive gas oil as specified elsewhere in the Contract Documents.

The automotive gas oil shall comply with the requirements for that material as specified in TNZ M/1, Specification for Asphaltic Bitumens.

11. CUTTING BACK

The asphalt cement shall be cut back with lighting kerosene so that the total diluent content of the binder is in accordance with Table 1. Binder which is sprayed while the shade air temperature of the site is rising shall be blended in accordance with the maximum expected temperature on the day. The maximum temperature shall be estimated by the Contractor and approved by the Engineer. Binder sprayed while the shade air temperature is falling shall be blended in accordance with the shade air temperature measured at the time of spraying. Interpolation may be used to obtain intermediate values from Table 1.

The formulations may be used over a range of $\pm 3^{\circ}\text{C}$ from the specified temperatures, except that where only six parts of total diluents are required, the upper temperature limit shall not apply. Binder not complying with this clause shall not be used without reblending.

The lighting kerosene shall comply with the requirements defined for this material in TNZ M/1, Specification for Asphaltic Bitumens.

Table 1

Shade Air Temperature $^{\circ}\text{C}$	Total Diluents, Automotive Gas Oil, Lighting Kerosene and Adhesion Agents — Parts Per Hundred Parts of Asphaltic Cement (Measured by Volume at 15°C)
12.5	15
15.0	14
17.5	13
20.0	11
22.5	9
25.0	7
27.5	6
and over	

Alternatively, a proprietary first coat sealing binder may be specifically directed or approved by the Engineer.

12. BLENDING THE SEALING BINDER

The total quantity of each component incorporated into the sealing binder shall be accurately measured by a volume metering or weighing device certified by the Weights and Measures Division of the Ministry of Commerce. The binder shall be thoroughly mixed before use. All plant and methods used to blend the binder shall be approved by the Engineer.

The Engineer may, by specific direction in the contract or job specification require that cutback, adhesion agent and/or flux is to be blended either at a central blending plant or on site. When blending is done in a central blending plant, or in the absence of the Engineer or his representative, the Contractor shall provide a blending certificate with each load of binder. The certificate shall list the following:

- (a) Time and date of blending;
- (b) Temperature of asphalt cement when blended;
- (c) Grade of asphalt cement;
- (d) Number of parts of automotive gas oil per 100 parts of asphalt cement;
- (e) Number of parts of kerosene per 100 parts of asphalt cement;
- (f) Type and quantity of adhesion agent (in parts per 100 parts of asphalt cement as well as the quantity in either kilograms or litres at 15°C).

If the Contractor fails to provide the specified blend or to provide accurate delivery certificates, the Engineer will require the Contractor to blend only in the presence of the Engineer or his representative, at times and locations previously approved by the Engineer.

13. SAMPLING AND TESTING OF BINDERS FROM BITUMEN DISTRIBUTORS

13.1 The Contractor shall be responsible for arranging for the binder to be sampled from the bitumen distributor.

The sample of asphaltic material shall be taken from the bitumen distributor in accordance with TNZ M/1.

A minimum of two samples per bitumen distributor load shall be taken. The first of these samples shall be taken at the end of the initial spray run and the other immediately before the final spray run.

13.2 Testing of Asphaltic Binders

The Engineer or his representative may arrange for the asphaltic binder to be tested for lighting kerosene and Automotive Gas Oil content and also the quantity, type and/or presence of an adhesion agent as described in the Works Laboratory Reports numbers 6-83/3, 6-83/4 and 6-86/1.

14. TEMPERATURES OF SEALING BINDER MATERIALS

The binder, according to its composition, shall be sprayed at a spraying temperature within the limits defined in Table 2. Where the binder contained additives not listed in note 1 of Table 2, the spraying temperature shall be approved by the Engineer.

Where the sealing binder, or its asphalt cement component, is to be stored for a period exceeding one week, it shall be stored at a temperature not exceeding 150°C. The quantity of binder or asphaltic cement raised above this temperature in any one day should not exceed that which is to be sprayed on that day.

Where binder which has been heated to spraying temperatures must be stored for more than one day, thermostatic heaters shall not be used to maintain the binder temperature higher than 50°C below the appropriate spraying temperature listed in Table 2, except with the specific approval of the Engineer.

Any binder which has been heated to a temperature in excess of 30°C above that specified in Table 2 for any period, or which has been held in storage at temperatures above those permitted in this clause, shall not be used until it has been re-tested for compliance with the specification.

Table 2

Total Diluent	Temperature °C
6	154
7	153
8	151
9	149
10	146
11	144
12	142
13	139
14	137
15	135

Note 1. Total Diluent refers to the total quantity of diluents, automotive gas oil, adhesion agent and lighting kerosene, expressed as parts per hundred parts of asphalt cement (measurement by volume at 15°C).

Note 2. Binder may be sprayed at temperatures varying not more than 10°C from these tabulated values.

Note 3. This table does not apply to binders containing diluents other than those listed in note 1.

15. SAFETY PRECAUTIONS

Procedures for heating, blending, spraying and transferring binder materials shall be strictly in accordance with the Code of Practice developed by the New Zealand Bitumen Contractors' Association Inc entitled *The Safe Handling of Bituminous Materials Used in Roading*.

16. QUANTITY OF ASPHALTIC BINDER

The quantities of asphaltic binder components shown in the schedule are provisional quantities for tendering purposes only.

Approximate application rates for the asphaltic binder at 15°C (excluding the kerosene content) will be available to the Contractor for each section when the appropriate sealing chip stockpile is tested and approved. The observations and calculations leading to these application rates will be available for inspection by the Contractor.

The required application rates for asphaltic binder to be used on the work will be established by the Engineer, and communicated to the Contractor in writing on site.

17. SEALING CHIPS

Sealing chips for covering the binder shall comply with the requirements defined in TNZ M/6, Specification for Sealing Chips.

Chips which are sufficiently dry to adhere to the binder without applied pressure within five minutes of being spread over the binder shall be considered satisfactory. The above standard of dryness of chips shall be adopted without variations.

Pre-coated chips shall comply in all respects with the requirements defined in TNZ M/11, Specification for Pre-Coating Sealing Chips.

Where the Contractor is to supply the sealing chips he shall be responsible for arranging his stockpile sites at locations to be approved as suitable by the Engineer. Stockpile sites on private land shall be subject to the provisions of Clause 5, Use of Private Land. The Contractor shall inform the Engineer immediately each stockpile is completed and allow 14 days for the Engineer to test it for approval. The Contractor shall not add any further material to any stockpile from the time that he notifies the Engineer that it is completed until its use on the contract is ended. No chips shall be used from an unapproved stockpile.

The chips used to seal any section shall generally be drawn from the stockpile appropriate to that section. Where the Contractor wishes to use chips of the same grade from an alternative tested and approved stockpile, he shall submit such alternate proposal to the Engineer a minimum of 36 hours before the proposed chip use. Approval of any such proposal will be accompanied by amendment or confirmation of the required binder application rate, and may require that such alternate chip be not mixed with that from another stockpile.

The Contractor may elect either to seal the site before stockpiling or to place the aggregate directly on the ground. In the latter case a continuous layer of chip shall be left on the bottom of the stockpile area sufficient to prevent contamination of the chip by the ground.

18. APPLICATION OF THE SEALING BINDER

The binder shall be applied with a bitumen distributor, operated in accordance with BCA E/2, Specification for Performance of Bitumen Distributors administered by the New Zealand Bitumen Contractors' Association Inc. Spraying shall be stopped immediately any defect in the sprayer becomes apparent, and the fault shall be rectified before spraying recommences.

When the road surface has been cleaned and brought to the required standard, the binder shall be sprayed at the specified rate over the prepared surface within the sections defined in the Contract Documents. The quantity of binder sprayed in any spray run, measured by dipstick reading, shall not vary from the amount directed by more than 50 litres plus 4% of the amount directed. Should greater variation occur more than twice during spray operations in a single day then the Certificate of Compliance issued for the affected bitumen distributor may be withdrawn by the Engineer.

Where a calibrated accumulating rev counter is fitted to the distributor, the counter may be used to measure the binder used in a single spray run, for the sole purpose of checking application rate, but dipstick measurement before spraying is commenced from the tank and after the last spray from the tank, or prior to its refilling, shall be required for payment purposes, for check of variation from directed amount as described above and to check the accuracy of the rev counter.

The road shall be reasonably dry before the binder is applied, and no spraying shall be carried out when the air temperature measured within the confines of the sealing course is below 10°C in the shade. All spraying operations shall comply with Clause 4, Working Hours. At locations which have been noted as heavily shaded, the Engineer may direct that sealing operations be performed during a limited period of the day.

In order to ensure that the require rate of applications is obtained at the commencement of the spray and that a sharp and even joint is obtained at the finish of the spray, a 1 m minimum width of non-porous paper or fabric shall be placed across the pavement where each run of the spray starts and finishes. The Contractor shall take adequate measures to secure the paper against lifting by wind or traffic. Soil shall not be used for that purpose.

Immediately prior to any sprayer run, the binder shall be circulated through the spray bar until the bar is fully heated.

The bitumen distributor shall start moving not less than 5 m in advance of the area to be sprayed, so as to be travelling at the correct speed when the spray bar reaches the paper strip. Spraying shall start and stop within the paper strips.

19. PATTERN OF SEALING OPERATIONS

The position of transverse and longitudinal joints between adjacent spray runs and the position and extent of hand spray work shall be subject to approval by the Engineer. Where a longitudinal joint occurs, a strip of the first sprayed area shall be left unchipped to allow effective jointing with the next pass of the sprayer and the next spray run shall overlap to the extent recommended in the Certificate of Compliance of the distributor.

No lap shall be left uncompleted at the end of any day's sealing. Unless otherwise approved by the Engineer, laps within traffic lanes, or within 600 mm of them, shall be completed within 30 minutes of the first side being sprayed. No normal road traffic shall be allowed to cross uncovered binder.

20. PROTECTION OF ROAD FURNITURE

Before any binder is sprayed, the Contractor shall offset mark out the positions of all service covers and railway crossing rails in the road surface and bridge expansion joints, so that they can readily be located afterwards, and shall cover them adequately to protect them from spray. Once spraying and chip spreading is completed the covers shall be cleaned off.

Kerb and channel, marker and sign posts, and other road furniture adjacent to surfaces to be sealed, shall be adequately protected against oversprayed binder and from roller or other damage. Any blemish or damage so caused shall be made good at the Contractor's expense and to the satisfaction of the Engineer.

21. SPREADING OF CHIPS

After the spraying of the binder, the spreading of cover chips shall commence promptly. All binder sprayed shall be covered with chips across the full sprayed width, apart from necessary longitudinal laps, within five minutes of spraying.

Before commencing any sprayer "run", sufficient loaded trucks shall be at the site to provide the full chip cover for the area of road surface to be sprayed. The spread rate of the chips shall be such that when fully rolled it will be one stone thick, closely packed shoulder to shoulder, with the individual stones lying flat. The Contractor shall be responsible to obtain the appropriate chips spread rate which may be tested for "take" of chips as described in Clause 28.1 at the end of the protection period.

Workmen with hand brooms shall be stationed to ensure that the area of binder is evenly covered by sealing chip. The Contractor may also use sheeting and drag brooming to evenly distribute the chip.

22. ROLLING

The total rolling requirement, applied by pneumatic tyred rollers as defined in Clause 6 shall be related to the amount of binder sprayed as follows:

$$T = \frac{V_t}{450 \times S \times n}$$

where

T	=	Total roller requirement (hours)
V _t	=	Total volume of binder sprayed (litres) measured at spraying temperature.
S	=	Average overall rolling speed (kph) employed in uninterrupted rolling for an average speed of up to 8 kph. For average overall speeds of 8 kph or greater S = 8 kph.
n	=	number of rollers employed in uninterrupted rolling.

Rolling shall be classified as initial rolling (which is half the total rolling requirement), and finish rolling.

Initial rolling in association with hand brooming shall be applied within 30 minutes of the application of chip. The maximum binder volume, to be sprayed before pausing to allow the initial rolling to be completed within 30 minutes, shall be related to the total number and average rolling speed of rollers employed in the initial rolling as follows:

$$V_m = 450 \times S \times n$$

where V_m = Maximum binder volume (litres) measured at spraying temperature.

S and n As already defined in this clause.

This volume may be sprayed in a single run or as successive adjacent runs.

An approved self-propelled, smooth steel wheeled, non-vibrating roller, with rolling wheels not less than 0.5 m in width, applying loads of not less than 2700 kg, nor more than 4500 kg per metre of roll width may be used for not more than the first two passes required for the initial rolling. These two passes shall be deemed to equate to $\frac{2}{3}$ of the initial rolling specified.

During the initial rolling other plant shall not be permitted to impede the rollers by parking on the new seal. The entire sealed surface must be rolled, with greater emphasis being placed on areas outside normal traffic wheel tracks.

Finish rolling, comprising the balance of the total rolling requirement, shall be completed on the day of sealing before removal of the rollers from the site.

23. NO FOULING OF SEALED SURFACE

The sealed surface shall not be fouled by soil, water, oil, petrol or other droppings. The movement of plant and traffic onto the new seal and into and out of stockpile areas shall be controlled to prevent the carrying of material onto the seal by vehicles tyres.

24. INTERSECTING PUBLIC ROADS AND PRIVATE WAYS

Unless otherwise specified all unsealed intersecting public roads to the boundary of the road reserve being sealed and private ways to the kerb line or surface water channel line shall be sealed in accordance with this specification.

25. REMOVAL OF SURPLUS AND WASTE MATERIAL

Paper or fabric placed across the pavement for the sprayer runs, and binder twine or cord lines used to define the edges of the sealing, shall be uplifted immediately after the chip is spread. These items and all empty containers, surplus binder and other materials shall be stored neatly until removed from the site at the end of the working day. Unless

otherwise approved by the Engineer, where the Contractor supplies the sealing chips he shall remove all surplus chips in stockpiles on the road reserve before the end of the contract period.

26. TRAFFIC CONTROL

At all times during the construction of the works included in this specification, the Contractor shall take responsibility to ensure all traffic control is carried out in accordance with the Specification for Temporary Traffic Control, TNZ G/1.

Temporary traffic control restrictions shall not exceed 5 km in length at any one time unless otherwise approved by the Engineer in writing.

27. REMOVAL OF SURPLUS CHIPS

Surplus chips shall be removed from the sealed surface prior to the removal of the temporary speed restriction signs. In unkerbed rural sections, chips may be swept evenly across the unsealed trafficable shoulder but, in all cases, chip shall be uplifted and removed from the works.

The removal of the surplus chips shall be carried out by light rotary brooming together with handbrooming where necessary. Suction may be used to uplift surplus chips after brooming. Every precaution shall be taken to ensure that chips which are in contact with the binder are not removed. Not more than 50 grams weight of loose chips shall be left on any two metre square area of the surface.

28. PROTECTION AND REPAIRS OF THE SEALCOAT

28.1 The Contractor shall take all necessary measures to protect each section of new sealcoat from the completion of the rolling until the removal of the temporary speed restrictions as specified in Clause 26, Traffic Control. The standard of protection shall be such that the area covered by chips in close contact shall not be less than 98% of the total area being considered. When testing for the "take" of chips, the minimum area to be considered shall be a square of 300 mm sides.

The Engineer will inspect the sealcoat immediately prior to the removal of the temporary speed restriction and after final surplus chip removal is completed. Provided that the requirements of this specification have been complied with and the binder is completely bonded to the sealing chips, the Contractor shall not be required to carry out any further works or maintenance with respect to that section of sealcoat.

28.2 If the requirements of Clause 28.1 are not met, the Engineer may withhold payment for the defective area of work and also such additional sums as he deems necessary to perform adequate remedial works. These monies, less the cost of any repairs not performed by the Contractor, shall be surrendered to the Contractor

when, in the opinion of the Engineer, sufficient satisfactory repairs have been made and the surface is in a stable condition and not likely to deteriorate.

- 28.3** Any bald areas exceeding 0.5 m² shall be repaired within five days from the day of occurrence or reporting.

Loss of chip exceeding 5% in any square metre of the total sealed area shall be repaired within one month from the date of observance or reporting.

- 28.4** The standard of any remedial works shall be such that the repaired surface shall have an equal standard of safety, durability, waterproofness and smoothness to that of an undamaged new surface and it shall be virtually indistinguishable from the adjacent surface.

For the safety of the public, necessary repairs shall be carried out promptly. If the Contractor is unable to perform repairs as required, the Engineer will direct alternative agencies to perform the work. All repairs shall be at the Contractor's expense unless he has already discharged his obligations under Clauses 28.1 and 28.2 of this specification.

- 28.5** The Contractor shall make no repairs without the prior approval of the Engineer for the methods to be used.

The Contractor should be aware that, in some circumstances, at least the following repair methods may be necessary:

- (a) Reinstatement of chip by rolling in;
- (b) Burning off excess binder;
- (c) Overlay by one or more seal coats;
- (d) Overlay by asphaltic mix or granular material.

29. BASIS OF PAYMENT

All miscellaneous items, board, supervision, contingencies, conveyance of plant and incidental work, plus general overhead and administration, are incorporated in the unit rates listed in the schedule.

29.1 Payment for Preparation of Surface

Payment for cleaning and brooming the basecourse surface will be made at the appropriate unit scheduled rate on the total area in square metres of surface covered by the first coat seal.

29.2 Payment for Sealing Binder Materials

29.2.1 Determination of quantities

The quantity of each of the components of the sealing binder, namely the asphalt cement, the lighting kerosene, the automotive gas oil and the adhesion agent, shall be calculated from the total equivalent volume in litres (interpolated to the nearest 10 litres) at 15°C of sealing binder actually applied to the road surface, measured by dipstick readings, and the actual proportion of the component in the binder, except for mineral turpentine added as a component of the adhesion agent.

When the binder is blended in the presence of the Engineer or his representative, the actual proportion of each component will be recorded by the Engineer as it is added. Where blending is not performed in the presence of the Engineer or his representative the proportion of each component may be checked by the Engineer as stated in Clause 13.2.

If the laboratory assessment for the quantity of diluent in the asphaltic binder varies by more than two parts per hundred parts of asphaltic cement from the blending certificate, the laboratory figures shall be deemed to be the actual proportions.

If the laboratory assessment for the quantity of adhesion agent in the asphaltic binder varies by more than 0.15 parts per hundred parts of asphaltic cement, from the blending certificate the laboratory figures shall be deemed to be the actual proportions.

29.2.2 Payment for asphalt cement

Payment for asphalt cement will be made at the appropriate unit scheduled rate on the equivalent volume in litres (to the nearest litre) at 15°C, calculated as in Clause 29.2.1, except that no payment shall be made for any quantity in excess of that directed by the Engineer in accordance with Clause 16, plus the tolerances permitted in Clause 18.

The unit scheduled rate shall be in full compensation for the supplying of approved asphalt cement, heating, transporting, blending, placing and sampling the binder.

29.2.3 Payment for lighting kerosene

Payment for lighting kerosene will be made at the appropriate unit scheduled rate for the equivalent volume in litres (to the nearest litre) at 15°C, calculated by multiplying the quantity of asphalt cement approved for payment (in accordance with Clause 29.2.2) by the proportion of kerosene to asphalt cement. The proportion of kerosene used in this calculation will not exceed that specified. The unit scheduled rate will be in full compensation for supplying transporting and blending of the lighting kerosene.

29.2.4 Payment for automotive gas oil

Payment for automotive gas oil will be made at the appropriate unit scheduled rate for the equivalent volume in litres (to the nearest litre) at 15°C, calculated by multiplying the quantity of asphalt cement approved for payment (in accordance with Clause 29.2.2) by the proportion of automotive gas oil to asphalt cement. The unit scheduled rate will be in full compensation for supplying, transporting and blending of the automotive gas oil.

29.2.5 Payment for adhesion agent

Payment for adhesion agent, including any mineral turpentine specified as a component of the adhesion agent in accordance with TNZ M/13 will be made at the appropriate unit rate on the total equivalent volume in litres of asphalt cement approved for payment (in accordance with Clause 29.2.2) and to which the adhesion agent components have been added as specified herein.

29.3 Payment for Sealing Chips Supplied by Contractor

Payment for sealing chips will be made at the appropriate unit schedule rate on the total number of square metres of road surface covered with stone chips in accordance with this specification. The unit rate will be in full compensation for supplying, transporting, spreading, rolling, compacting, removal of surplus chips and for all labour, use of equipment, tools and incidentals necessary for the application of the chips in accordance with this specification.

29.4 Payment for Pre-coating

Where the chips are required to be pre-coated then payment for pre-coating will be made at the appropriate unit schedule rate on the total number of square metres of road surface covered with pre-coated chips in accordance with this specification. The unit schedule rate will be in full compensation for supplying of approved pre-coating material, and applying the pre-coating material including all handling of the sealing chips.