

KOUGA MUNICIPALITY

RESEALING OF ROADS

SCOPE

The specification covers the preparation of road and street surfaces and the subsequent applications of Bitumen Emulsion Slurry Seal, Cape Seal or Hot-mix Asphalt:

- (1) Fine Aggregate Slurry Seal using – 4,75mm aggregate with 11% (plus or minus 1%) residual bitumen content at a spread rate to be determined on site.
- (2) Coarse Aggregate Slurry Seal using – 9,5mm aggregate with 11% (plus or minus 1%) residual bitumen content at a spread rate to be determined on site.
- (3) Continuously graded medium Type IVa hot premix surfacing using 60/70 pen grade bitumen at 25mm thickness
- (4) 13mm Aggregate and fine slurry- binder 65% spray grade cationic emulsion

2. WORK TO BE DONE

The work to be done includes the furnishing of all materials, plant, labour and equipment required sweeping of road surfaces, the spraying of herbicide and the mixing and spreading of bitumen emulsion slurry on streets and main roads within the environs of the Kouga Municipality.

3. QUANTITIES

This tender is for the total requirements of the Kouga Municipality and the successful tenderer will be bound to supply whatever quantity the Kouga Municipality may actually order during the period of the contract.

The Kouga Municipality does not bind itself to accept excess stocks held by suppliers at the end of the contract period.

4. ACCOMMODATION OF TRAFFIC

The Contractor shall so arrange and conduct his operations as to cause the least possible inconvenience to public traffic either by road or side walk.

During the period of construction of the works, the contractor shall be responsible for the safe and easy passage of pedestrians, animal-drawn traffic and vehicular traffic, through or over all sections of public and private roads and access to premises which may be interfered with by his operations.

The Contractor shall at his own expense provide flagmen and watchmen and shall further provide, erect and maintain such directional and danger signs, barriers and lights, all as may be required by law or the Chief Traffic Officer or by the Municipal Manager.

Nothing contained herein shall be construed as relieving the Contractor in any manner or degree of the responsibility and obligation of ensuring the safety of the public.

Under certain special circumstances the Municipal Manager may, after consultations with the Traffic Department, permit the Contractor to close a road to through the traffic or to partially close a road so that traffic may proceed in one direction only. If the Municipal Manager's permission is obtained, the contractor shall agree with the Municipal Manager on the approximate date on which such road is to be closed or partially closed. The Municipal Manager will then arrange to have a notice of the Kouga Municipality's intention to close or partially close the road, inserted in the local newspapers, stating the exact date on which traffic on such road will be interfered with. The Contractor shall close or partially close the road and commence operations in such road on the date stated in the public notice and at a time determined by the Municipal Manager.

Where a road will be interfered with or partially obstructed by the Contractor's operations, but will not be closed to traffic, the Contractor shall give at least seven (7) days notice to the Municipal Manager, and the Chief Traffic Officer of the date on which his operations in such road are to commence. The Municipal Manager will decide on the width of the roadway or access which is to be kept clear and the Contractor shall ensure that such clear width is not obstructed by his plant, spoil, rubbish or materials of any description. Where spoil has become spread over the clear roadway, it shall immediately be replaced on the main heaps. Spoil shall be placed so as not to interfere with the drainage of the road surface. An adequate footway must be kept clear at all times.

5. PLANT

The plant, equipment and tools to be used by the Contractor in the execution of the works shall be of good quality, should design and modern manufacture of such a type and character as will afford proper facilities for carrying out the work required expeditiously and in a workmanlike manner and shall be maintained in a state of efficiency and shall be suitable for the purpose for which it is to be used.

MIXER FOR SLURRY SEAL: A mixer of an approved type shall be provided for the mixing of slurry seal. Each mixer shall be permanently numbered, and a mix design shall be provided for each mixer to be used on site. Containers to be used in the mixing process shall be of standard size and shall be clearly marked. The mixer shall be of such capacity that the programmed output is achieved and shall be equipped with mass or volume measuring devices capable of controlling, with acceptable accuracy, the proportions of each constituent of the mix.

The paddles of the mixer shall be so designed as to ensure complete blending of the constituents of the slurry. Use of a continuous mixer will not be allowed.

The engineer shall have the right at any time during the progress of the contract to inspect and test the plant, equipment and tools as to the efficiency and suitability and shall have the power to order any of the plant which he considers inefficient and unsuitable, to be rejected and removed from site. Such plant shall be removed immediately and efficient and suitable plant shall be substituted by the contractor at his own expense on receipt of such order. The contractor shall ensure that all safety requirements are strictly adhere to at all times.

6 MATERIALS: Slurry Seal

(a) Bitumen Emulsion

The emulsified bitumen shall be of the cationic stable-mix grade and shall conform to the requirements of SABS 548 – 1972.

The bitumen used for the manufacture of the emulsion shall comply with the requirements of SABS 307 – Bitumen Road Cements.

(b) Aggregate

The aggregate used in the mixing of the slurry shall consist of clean crushed stone fines and having the grading listed below. If the fraction passing the 0,075 sieve is insufficient, a proportion of mineral filler such as Portland Cement shall be added in the proportion of 0, 5% to 2, 0% of the dry weight of the aggregate and the combined aggregate shall then have a grading within the following limits:

<u>Sieve Size (mm)</u>	<u>Percentage Passing</u>	
	<u>Fine Aggregate</u>	<u>Coarse Aggregate</u>
9, 5	100	
6, 7	96 – 100	
4, 75	100	
	85 - 100	
2, 36	74 - 95	64 - 80
1,180	58 - 74	48 - 60
0,600	43 - 56	38 - 44
0,300	30 - 41	25 - 32
0,150	23 - 30	19 - 24
0,075	17 - 23	14 - 20

The Contractor may obtain material from any source of supply provided that test results show the material to be satisfactory and the written authority of the Engineer is first obtained. The Engineer may request the submission of samples by the Contractor and at the Contractor's expense, of the material the contractor intends using, for testing by an independent laboratory.

The Engineer may from time to time instruct the contractor to submit further samples from approved sources of supply in order to ensure that the quality of the material from such sources is still up to standard. The Engineer may instruct the contractor to cease obtaining material from any source of supply which is no longer considered satisfactory by the Engineer.

Regular tests on the material and the mixed slurry will be carried out by the Engineer and he may instruct that any material or slurry not considered satisfactory, be replaced with satisfactory material or slurry at the contractor's expense.

(c) Mineral Filler

The mineral filler used shall consist of Portland cement conforming to SABS 471.

(d) Water

Potable water shall be used in the mix.

7. MIXING AND SPREADING

The bitumen emulsion slurry shall consist of a mixture of emulsified bitumen, crushed stone aggregate, mineral filler and water correctly proportioned and mixed. The slurry shall be applied to produce a total uniform coverage of not less than 150 square metres per cubic metre for Fine Slurry Seal and not less than 80 square metres for Coarse Slurry Seal. The actual spread rate shall be determined on site as it will vary from road to road. The existing stone texture shall not be visible through the dried slurry.

After the slurry has dried out and cured, it shall present a uniform appearance and have a skid-resistant texture and adhere firmly to the surface that has been sealed.

Provision must be made for the dampening the road surface ahead of the slurry application.

8. PREPARATION OF ROAD SURFACE

The surface to be treated shall be thoroughly cleaned before any slurry is spread thereon. All loose stone chippings, sand, debris, vegetation, etc., shall be removed.

An item has been included to allow for the cleaning of and removal from site of abnormal debris, which shall be ordered and agreed upon, in writing, by the Engineer or his representative.

The contractor shall spray, at his own expense, all grasses and weeds within the area to be slurred with an approved herbicide. This shall be applied at least 1 week before the slurry operation.

9. PROTECTION OF EXISTING SERVICES

Manhole covers, other services covers, kerbs and channels shall be protected by adhesive paper or other suitable means and this shall be removed when the slurry has set. The Contractor shall be required to locate and clean all of the above mentioned services on completion of the work, to the satisfaction of the Engineer

10 APPLICATION OF SLURRY

The road surface shall be lightly dampened with a fine spray of water immediately ahead of the work.

The slurry mix shall be discharge onto the surface in a creamy homogenous consistency and shall roll smoothly in a continuous mass in front of the squeegee blades. As far as possible, the spreading operation shall continue without stopping. Care shall be taken to obtain smooth joints.

The squeegee team shall ensure that all bare patches are covered and that any thick accumulations of slurry are levelled off or removed immediately. Patching shall be done immediately with slurry from the same batch in order to obtain a uniform colour.

Longitudinal joints shall be carefully overlapped to avoid lean strips which shall immediately be rectified if necessary. Edges of slurry surfacing shall present clean straight lines along the line of kerbs, channels or edges of the road.

11 PROTECTION OF SLURRIED SURFACES

Traffic shall be kept off the slurred surface until the slurry has cured to the stage at which there will be no pick-up under traffic. The contractor shall provide and maintain sufficient "road closed" boards and other signboards together with an adequate supply of beacons and flagmen for this purpose.

No barricades shall be permitted to remain in any road after official lighting-up time unless adequately lighted with watchmen in attendance.

12 MEASUREMENT AND PAYMENT

The unit of measurement for the Fine and Coarse Slurry shall be taken as **square metres (m²)** of slurry mixed and spread.

The tendered rate per square metre of slurry seal shall include for the supply of all materials, plant, transport and labour for the preparation of the road surface and the supply and application of herbicide, for the mixing and spreading of the slurry, for the provision of signboards and guide beacons and flagmen and for every other operation implied in the clauses of this specification.

13 PROTECTION OF MATERIAL STOCKPILE AND PLANT STORAGE AREAS

The contractor shall make application to the Engineer for the approved material stockpile and plant storage areas. Storage areas shall be left in a similar condition or to that prior to the commencement of the contract. All loose stones shall be raked up and bitumen and diesel spills cleaned to the satisfaction of the Engineer.

14 **POTHOLE REPAIR**

a) Method and Procedure

- Remove existing material to a minimum depth of 150mm below existing road surface in a rectangular pattern
- Sweep area to be primed with a bass broom and remove any loose material, and fill hole with G4 natural gravel up to 50 mm from top and compact.

Prime the prepared area including the vertical edges of the existing surface as follows:

- If very dry, slightly dampen area to be primed
- Use block brush to apply Cationic 60% Spray Grade Emulsion
- Place hot asphalt (Type IV A mix) to approximately 10mm above the existing surface and compact to conform to the level of the existing road surface.
- Add asphalt and compact where low spots occur
- Cart spoil to designated tip site

b) Measurement and Payment

1) Pothole Repair Square Metre (m²)

The unit of measurement shall be a square meter of pothole repaired

- 2) The tendered rate shall include full compensation for all Preliminary and General items, Site establishment, labour, plant and equipment, handling and transport, providing all material, demarcation, excavating in all types of materials, backfilling and compacting to specification , prime and surface reinstatement according to specification and disposal of spoil material to designated tip site.

15. **SURFACE REPAIR.**

a) Method and Procedure

- All excavations shall be rectangular and neat along the lines demarcated by the Engineer
- The existing surface shall be removed to a depth of 50mm
- The exposed area shall be brushed and cleaned of all loose material
- The exposed and vertical cutting faces shall be primed with Cationic 60% Spray Grade Emulsion
- Hot asphalt (Type IV A) shall be placed and compacted to conform with the level of the existing road surface
- Cart spoils to designated tip site.

b) Measurement and Payment

1) Surface repair Square Metre (m²)

The unit of measurement shall be a square metre of surface repair done

- 2) The tendered rate shall include full compensation for all Preliminary and General items, Site establishment, labour, plant and equipment, handling and transport, providing all materials, demarcation, excavating in all types of material, backfilling and compacting to specification, prime and surface reinstatement according to specification and disposal of spoil material at a designated tip site.

Work in restricted areas as well as other incidentals for executing the work as specified shall also be deemed to be included in the tendered rates.

16. **Cape Seal**

RATES OF APPLICATION

The nominal rates of application to be used are as follows:

<u>Type of Seal</u>	<u>Hot binder spray rate</u> (litres per m ²)	<u>Aggregate</u> (m ³ per m ²)
<u>Fog spray</u> Comprising Cat. 65% Emulsion diluted with 30% water	1,0	-
<u>Cape Seal</u> 13,2mm Aggregate	-	0,008
Tack coat (bottom)	1,3	-

Plus Fog Spray as above (to be included in rate/m²)

Plus Fine Slurry

The tendered rate shall include full compensation for all Preliminary and General items, Site establishment, labour, plant and equipment, handling and transport, providing all materials, demarcation, excavating in all types of material, backfilling and compacting to specification, prime and surface reinstatement according to specification and disposal of spoil material at a designated tip site.

Work in restricted areas as well as other incidentals for executing the work as specified shall also be deemed to be included in the tendered rates.

SPECIAL CONDITIONS

- (a) Escalation – CPA to be applied
- (b) Bidders to be registered with CIDB 2 SB or higher.
- (c) Should the Service Provider fail to supply within the times as set out in the tender document, a penalty equal to 1% of the total cost of the work-order will be deducted from any monies due, for each day in breach.
- (d) The successful bidder will be expected to do a trial section (length as agreed by bidder and client)

