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|-----------------------------------------------------------------------------------|--------------------------------------------------|------------|--------------------------|
|  | SHEC MANAGEMENT SYSTEM                           | Doc no:    | SHEC 3.2                 |
|                                                                                   |                                                  | Rev no:    | 001                      |
|                                                                                   | 3. SAFE OPERATING PROCEDURES & METHOD STATEMENTS | Rev date:  | 15/10/2019               |
|                                                                                   |                                                  | File name: | 999 - MS-016-Resurfacing |

**Contract no: C1049.03**

**Contract name: UPGRADING OF DIVISIONAL ROAD 1098 (KM5, 47 TO KM8, 79) AND REHABILITATION OF DIVISIONAL ROAD 1098 (KM8, 79 TO KM14, 24)**

## **METHOD STATEMENT 016 – RESURFACING WORKS**

| BASELINE CIVIL CONTRACTORS (PTY) LTD SUBMISSION FOR ACCEPTANCE |             |                |      |           |
|----------------------------------------------------------------|-------------|----------------|------|-----------|
|                                                                | Name        | Designation    | Date | Signature |
| Prepared                                                       | JOHAN LUBBE | Safety Officer |      |           |
| Approved                                                       | MARK CLOETE | Site Agent     |      |           |
| Submitted                                                      |             |                |      |           |

| ENGINEERS APPROVAL           |      |             |      |           |
|------------------------------|------|-------------|------|-----------|
|                              | Name | Designation | Date | Signature |
| Engineers Acceptance         |      |             |      |           |
| Health and Safety Acceptance |      |             |      |           |
| Environmental Acceptance     |      |             |      |           |

**WHAT work is to be undertaken?**

All works related to the resurfacing of the road section

**WHERE are the works to be undertaken?**

JOOSTENBERGVLAKE, Waarburgh Road.

**WHEN are the works to start, what is the anticipated finish date?**

Start: November 2023 – End: June 2025

**HOW are the works to be undertaken?**

**1. REFERENCE**

- 1.1. Work scope and drawings
- 1.2. Surveying positions (GPS co-ordinates)
- 1.3. Geotechnical report
- 1.4. EMP
- 1.5. Construction regulations
- 1.6. OHS ACT
- 1.7. Risk Assessments
- 1.8. Quality Test and Inspection Plan (QTIP)

**2. RESPONSIBILITIES**

**The site management is responsible for:**

- 2.1. The compliance of work carried out, as established in this procedure, as well as any supplementary specification and/or procedure, which may apply and which will be conveyed by the RE.
- 2.2. Hiring and having available the adequate human and material resources, in quantity and specialisation, in order to perform the work.
- 2.3. Performing the tests defined in this procedure by means of a certified and qualified Test Laboratory.

**3. LABOUR, EQUIPMENT AND PPE**

- 3.1. General foreman
- 3.2. 2 x Asphalt & Seal foreman
- 3.3. 2 x Students
- 3.4. Skilled, semi-skilled and unskilled labourers
- 3.5. Subcontractors
- 3.6. Milling machine
- 3.7. Paver
- 3.8. Distributor
- 3.9. Chip spreader
- 3.10. Tipper trucks
- 3.11. Flatbed trucks
- 3.12. Vibratory steel drum rollers
- 3.13. 2.5 ton Steel drum roller
- 3.14. Pneumatic rollers
- 3.15. Water truck
- 3.16. Grader
- 3.17. Digger loader

- 3.18. Bobcat
- 3.19. Mechanical broom
- 3.20. Mixer trucks
- 3.21. Batch plant
- 3.22. Front end loader
- 3.23. Tractor and trailer
- 3.24. Compressor
- 3.25. Generators and breakers
- 3.26. Shovels
- 3.27. Rubber squeegees
- 3.28. Slurry rope
- 3.29. Hand brooms
- 3.30. Hand Spray cart
- 3.31. Thin layer troxler
- 3.32. GPS
- 3.33. Measuring Tapes
- 3.34. First Aid box
- 3.35. PPE i.e. overalls, safety boots, leather gloves, safety spectacles, face, hearing and dust protection
- 3.36. Fire extinguisher and fire beaters

#### **4. METHOD**

##### **4.1. TRAFFIC ACCOMMODATION**

Half width construction will be strictly as per the approved Traffic Accommodation Plan submitted to the RE on site.

##### **4.2. PAVEMENT REHABILITATION**

- 4.2.1. Failed pavement areas will be divided under "Large" and "Smaller" repairs.
- 4.2.2. Large repairs are areas longer than 50m and wider than 3m.
- 4.2.3. The base material of the large areas will treated by stabilisation.
- 4.2.4. The pavement material of the smaller areas will be replaced with asphalt and base surfacing.
- 4.2.5. Defective/failed surface areas to be excavated by means of a grader/excavator/milling machine to a depth as instructed by the RE.
- 4.2.6. If entire existing base layer material is found unsuitable, then the entire base layer must be removed and windrowed for inspection by the RE.
- 4.2.7. The same applies for an unsuitable or defective subbase layer.
- 4.2.8. Materials not used during construction phases to be loaded on tipper trucks by means of machinery/hand and stockpiled or disposed at pre-approved areas.
- 4.2.9. Saw cut outside perimeter of patches, break out and remove remaining layer works to the approved depth.
- 4.2.10. Import G2 from a commercial source for large repairs as instructed by the RE and stabilise, level and compact as per the project specifications.
- 4.2.11. Excavated patch surfaces to be swept, cleaned and all loose debris removed.
- 4.2.12. Excavated patch surfaces to be compacted when required doing so.
- 4.2.13. Tack coat to be applied to patch surfaces at the approved specified rate and allowed to break before filled with asphalt/BTB.
- 4.2.14. Asphalt/BTB to be placed by paver for bigger patches and by hand for smaller ones.
- 4.2.15. Asphalt/BTB layer to be compacted to project specification.
- 4.2.16. Density tests (control tests) to be performed directly after placement of asphalt/BTB by means of a thin layer troxler.

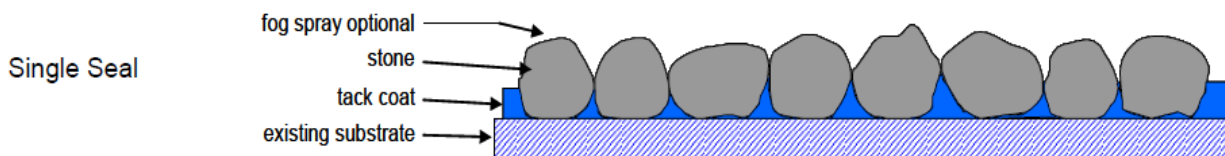
- 4.2.17. Asphalt/BTB to be delivered on site by means of tipper trucks from a commercial supplier.
- 4.2.18. Samples to be submitted as per engineers request for testing purposes.
- 4.2.19. Coring for testing purposes (acceptance tests) will be done by a commercial lab at locations as directed by the RE.

#### 4.3. POTHOLES, EDGEBREAKS AND SHOULDER REPAIRS

- 4.3.1. Set out, mark and saw cut outside perimeter of the pothole, edge break, break out and remove layer works to the approved depth.
- 4.3.2. Grader to rip defective area on shoulder in case of shoulder failure.
- 4.3.3. Existing material or new imported material to be reshaped, mixed with water to the optimum moisture content, placed, levelled and compacted to the project specifications.
- 4.3.4. If approved by the RE, shortage of material to be cut from outer shoulder where possible.
- 4.3.5. Edge breaks are then repaired in accordance with the above method for smaller repairs, using hot asphalt wearing course.

#### 4.4. BLEEDING AND PATCHED AREAS

- 4.4.1. Some of the patched and bleeding areas will be covered with a 14mm single armour seal as instructed by the RE.



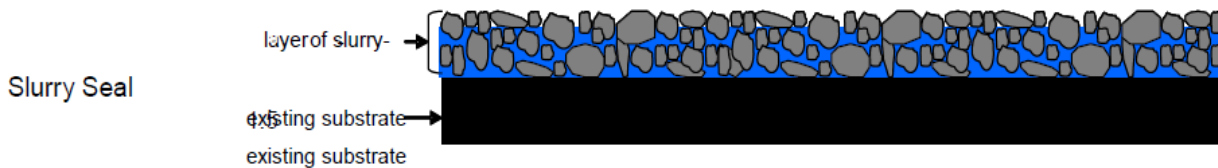
- 4.4.2. Surface to be swept by means of mechanical broom.
- 4.4.3. A guide line to be placed in the centre of the road surface.
- 4.4.4. Bitumen to be heated as to product specification by means of burners attached to the distributor.
- 4.4.5. Tack coat to be applied to road surface at the application specified by the engineer by means of a distributor.
- 4.4.6. Aggregate to be placed on the tack coat immediately and evenly at specified application rate by means of a mechanical chip spreader.
- 4.4.7. A back-chipping team will follow the chip spreader to ensure all areas are covered to engineers approval.
- 4.4.8. A pneumatic roller will follow the back chipping team and roll the placed aggregate to ensure adhesiveness.
- 4.4.9. A minimum of 4 passes shall be given.
- 4.4.10. The pneumatic roller will be followed by a 2.5ton flat steel wheel roller (1 pass only).
- 4.4.11. The surface will be broomed of by means of a mechanical broom to ensure there is no loose aggregate left on sealed surface.
- 4.4.12. A cover spray (fog) will then be applied to the sealed area with a distributor as per engineers design and be allowed to break.
- 4.5. A thin blinding layer of crusher dust or slurry layer (as specified by the RE) will then be applied to the surface and evenly spread by means of a drag broom or rubber squeegees to accommodate the traffic.
- 4.4.13. The worked area will be opened to traffic when deemed safe to do so.

#### 4.6. CRACK REPAIRS

- 4.5.1. Long and transverse cracks will receive different treatments depending on the pumping and excessive deformation of each crack.
- 4.5.2. Cracking with associated pumping and excessive deformation (>50m long and >3m wide) will be milled out to the depth of the base layer and replaced with new G1 quality material to the correct level.
- 4.5.3. The base will then be stabilized to 150mm with the specified added cement and compacted to the specified density.
- 4.5.4. The base layer surface will then be prepared, primed and sealed initially with a 14mm single seal using modified binders and one layer of slurry to accommodate traffic (as specified above).
- 4.5.5. All smaller areas will be excavated and backfilled with bitumen treated base material and 40mm of medium continuously graded hot asphalt wearing course.
- 4.5.6. Cracking with limited or no deformation and pumping will be surfaced with a 14 mm single seal using modified binders as specified and one layer of slurry.
- 4.5.7. All existing areas sealed with geofabric and slurry will also be sealed with the 14 mm single seal and slurry to act as an armoured layer for the final surfacing treatment.

#### 4.7. TEXTURE SLURRY SEAL

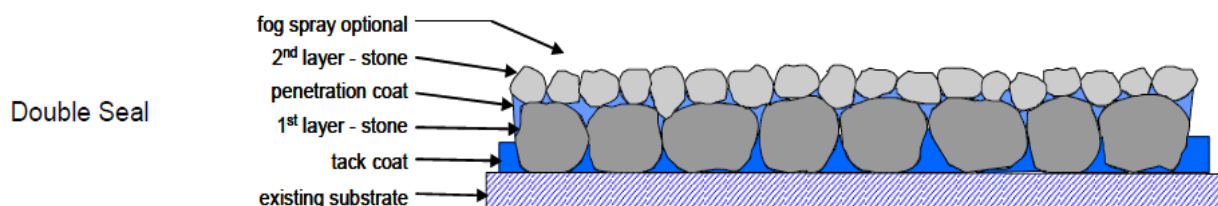
- 4.5.1. A texture slurry will be applied to the entire section of road to be resurfaced (excluding areas with a proposed final surfacing of asphalt).



- 4.5.2. Batching plant to be set up at demarcated stockpile area.
- 4.5.3. Slurry to be mixed as per engineers approved mix design.
- 4.5.4. Slurry to be delivered on site by means of a 6m<sup>3</sup> ready mix truck.
- 4.5.5. Tack coat to be applied to road surface prior to placing of slurry if instructed by the RE.
- 4.5.6. Slurry to be applied to road surface by hand with rubber squeegees and evenly drawn out to engineer's specification.
- 4.5.7. Edges to be contained by rope to avoid excessive spillage and to create a neat and straight line.
- 4.5.8. Slurry to be allowed to break and compacted with a pneumatic roller before reopening to traffic.
- 4.5.9. Samples to be submitted as per engineers request.

#### 4.8. DOUBLE SEAL

- 4.8.1. A 20mm + 7mm double seal will be constructed using SE1 and SC-E1 binders.
- 4.8.2. This double seal will also be constructed over the bridges.



- 4.8.3. The same basic principles applies for this operation as per the application of the above single seal.

## **5. SAMPLES AND TESTS**

All materials will be sampled and tested as specified in the project specification, Colto and SANS.

## **6. HEALTH AND SAFETY**

- 6.1. All employees will be inducted prior to site access.
- 6.2. PPE will be provided to ensure that harmful contact with any products and materials does not occur.
- 6.3. No person will be allowed on site without identification card or temporary visitor's card, except delivery drivers who will be escorted by a member of the site team.
- 6.4. All existing services obstructing the works will be pointed out to the site management.
- 6.5. Provision of adequate fire-fighting equipment and training.
- 6.6. Provision of adequate medical aid boxes and trained first aiders.
- 6.7. Risk assessments will be used to train site personnel on all the risks within their working environment.
- 6.8. Machine operators will be medically tested and deemed fit.
- 6.9. Employees will attend annual medical evaluation by an occupational health practitioner to evaluate their health.
- 6.10. All machine operators will be licensed and competent.
- 6.11. Daily, weekly and monthly monitoring, reviewing and reporting will be done on site.
- 6.12. Emergency control numbers and procedures will be readily available on site at all times.
- 6.13. All the required warning and safety signage will be in place.
- 6.14. All incidents and accidents will be reported immediately to the H&S Officer.

## **7. ENVIRONMENTAL**

- 7.1. All employees will be inducted prior to site access.
- 7.2. All areas used for storing of hazardous products and materials will be pre-approved by the ECO and RE.
- 7.3. All areas will be demarcated and where this hazardous material is present there will be a bund area constructed and ground coverage will be placed to reduce the risk of natural ground exposure.
- 7.4. Storage facilities will be within a safe distance from water sources and plantation.
- 7.5. Signage will be placed at no-go areas.
- 7.6. Vehicle access roads on site will be kept in good condition and be provided with regulatory site signs.
- 7.7. All plant will park at approved locations during non-working hours.
- 7.8. All works will be monitored and minimum environmental disturbance will be enforced.
- 7.9. All incidents and accidents will be reported immediately to the ECO and RE.
- 7.10. Care will be taken by all when smoking on site.
- 7.11. The minimum clearing will be allowed.
- 7.12. Toilets on site will be secured to prevent toppling of toilets in strong wind.
- 7.13. Toilets will be serviced regularly and monitored for additional services, if required.

**8. QUALITY ASSURANCE AND CONTROL**

- 8.1. All works will be carried out in accordance with the Project Specification and approved drawings as well as any supplementary specification and/or procedure which may apply.
- 8.2. Prior to any works commencing, the site manager will confirm with the RE that the information being used is the latest approved revision.
- 8.3. Any design changes must be conveyed to the site manager by RE in writing and/or on approved revised drawings.
- 8.4. All setting out will be presented to the RE for approval prior to work commencing.
- 8.5. All completed repairs will be presented to the RE for approval.
- 8.6. Repairs will be done in layer thicknesses as specified.
- 8.7. Each layer will be presented to the RE for approval before the next layer is placed.
- 8.8. The quantity surveyor will update all relevant inspection sheets as required and make all necessary arrangements for inspections by the RE.
- 8.9. Once a part of the work has been completed, it will be handed over to the RE with all relevant quality assurance documentation.
- 8.10. Testing and inspections will be done in accordance with relevant ITP.