RAA-ONE CONSTRUCTION & ENGINEERING PTE LTD

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CHANGI AIRPORT

LAYING OF CABLES AT SOUTH CROSS VEHICULAR BRIDGE

METHOD OF STATEMENT

MILL & PATCH UP OF ROAD

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1. Objective

This Work Method Statement is to outline the apply and lay pavement for the road construction consisting of sub base of granular material, road base of crusher run, asphaltic concrete binder courses and asphaltic concrete wearing course.

2. Scope

This method statement shall apply for all roadwork. The intention or this work method statement is to give general guideline for the roadwork construction. Details of the procedures contained herein may be modified based upon actual ground condition and site requirements.

3. Machinery & Equipment

- Paving Set
- Diamond Cutter
- Backhoe
- Back Pusher
- Tipper Lorries
- Vibratory Roller
- Thermometer
- Levelling Instrument
- Milling Machine

4. Materials

- Sand
- Crusher Run
- Asphaltic Concrete Mix Binder Course
- Bituminous Prime Coat

5. General

Before pavement construction can be allowed joint survey on existing pavement shall be carried out prior to the commencement of milling and excavation work and it is necessary for both the horizontal and vertical alignment to be joint inspection and confirmed by the Consultant.

Surveyor shall be using proper instrument total station and dumping level to mark on site which is visible and protected during work construction.

Pavement construction works shall only be allowed to commence on site upon the approval and acceptance of the sub-grade layer.

The Contractor shall counter check again the alignment and all dipping pegs and confirm with the Consultant prior to the permanent work.

6. Work Sequence Flow

- Milling out of the existing to a depth of not exceeding 110mm
- Laying 100mm granular material sub-base
- Laying 200mm crusher run road base
- Laying 60mm Asphaltic Concrete Binder Course
- Laying 40mm Asphaltic Concrete Wearing Course

7. Preparation of Formation To Receive Road Pavement

- The preparation of formation shall be carried out only after completion of piped or box culvert, services, utilities and ducts (if any) or any other drainage work that might affect the works, unless otherwise agreed by Consultant and such preparation shall be carried out immediately prior to the laying of the sub-base.
- All the materials for sub base, road base, ACBC and ACWC shall be sent to nominated and approve laboratory to conduct necessary testing and to be comply with technical specification.
- The surface of the formation shall be substantially uniform in density throughout its entire width and shall conform to the density requirements for compaction. Trial compaction to be conducted in order to determine the designated degree of compaction as required with a present of supervision consultant.
- Other utilities crossing the road such as water mains and cables shall be protected before proceed the road base works. For example using lid for u-drain and G.I. conduit for cables.
- It shall be trimmed to conform to the lines, camber, grades and typical cross sections shown on the drawings or as directed by Consultant.
- The sample of earth to send to lab for MDD test for comparison of degrees Compaction.
- To conduct trial compaction to determine passes roller required.
- Level pegging to be done at suitable distance for inspection.

8. Earth Formation

Where soft spots and unsuitable materials found, it shall be removed and backfilled with approved suitable material and compacted in accordance to the agreed rolling pattern.

9. Sub Base

- The sub base material shall be hard, durable and clean. It shall be granular material and shall be free from organic material, clay balls, and any other deleterious substances.
- The materials will be delivered to the site by tipper lorries and spread and leveled by means of a back pusher for the full width of the pavement. The material shall be filled and compacted to the required thickness as specified in the drawing.Compaction of the sub base layer shall be carried out by using vibrating roller to achieve relative dry density as per specification.
- Alignment, level and surface regularity will be checked in accordance to Technical Specification.
- The final surface of granular sub base layer shall be regulated and trimmed by back pusher to the required level and cross fall within the specified vertical tolerances. Compaction work will be done using roller compactor.
- Field Density test or CBR test on the subgrade shall be carried out according to the specification.

10. Laying Road Base Material

The crusher run road base to be placed on top of the sub base shall consisting of crushed aggregate laid in layers each of thickness not exceeding 200mm and to give the specified total compacted thickness and width, correct line and levels shown in drawings.

The material shall be crushed rock of hard durable particles or fragments of rock crushed to the correct size, well graded and lie within the following grading limits specified in the specification.

Care shall be taken to prevent segregation of the material into the coarse and fine fractions.

11. Bituminous Prime Coat and Tack Coat

An approve bituminous prime coat which is submitted through material submission shall be applied to the top of the completed crusher run base course before laying the asphaltic concrete binder course.

The surface shall be cleaned immediately prior to the application of prime coat. The bituminous shall be applied by means of a distributor at suitable rates but not to be less than 0.435 liters per sq meter. SS1K using for prime coat while RS1K using for tack coat.

The surface of the dense asphaltic concrete binder course shall be cleaned immediately prior to the application of an approve tack coat. The bituminous shall be applied by means of a distributor at suitable rates but not to be less than 0.35 liters per sq meter.

The prime coat shall be sprayed well in advance and leave for 24 hours for curing.

12. Transporting

Bituminous materials shall be transported in clean vehicles and shall be covered over when in transit or awaiting tipping.

Every precaution is to be taken to avoid segregation of mixed materials and to ensure that they do not become contaminated with foreign matter.

In order to maintain satisfactory temperatures of materials in transit and to prevent undue loss of heat adequate precautions are to be taken to ensure that the materials are properly protected.

13. Laying

The mixed materials shall, as soon as possible after arrival at the laying site, be supplied continuously to the paver and laid without delay.

Wherever practicable, road pavement materials having bitumen as the binder shall be spread, leveled and tamped by approved self-propelled pavers capable of laying to the required width, profile, camber or cross fall.

Immediately after any course is placed and before rolling is started, the surface shall be checked and all defects and irregularities in alignment, grade or texture corrected by the additional or removal of mixture.

14. Compaction

- The compaction shall be compacted as soon as possible as rolling can be effected without causing undue displacement of the mixed material.
- The rollers shall be fitted with beeper.
- The materials shall be rolled in longitudinal direction from the sides to the centre of the carriageway.
- For compaction, two times rolls pass by non-vibrate compactor prior to two times rolls pass by vibrate compactor. The roller shall weigh not less than 12 tonnes.
- Eight times rolls pass compaction shall be carried out by tyre roller.
- The last compaction shall be done by non-vibrate compactor.

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15. Safety

- Safety induction to be conducted to all new workers that involved to this activity and safety toll box meeting shall be conducted every day to remind the workers about concerning the safety.
- All workers shall be provided with PPE (Personal Protective Equipment) and shall be worn at all time on site. Safety Manager / Safety Supervisor shall ensure all the workers wear all the safety equipments provided.
- All workers shall be advised to report any accident or injury to supervisor.
- Proper and adequate provision of temporary signage's and barricades at diversions and temporary haul road as necessary (if applicable).

16. Environment

- All workers shall educate on good environmental management practices and well disciplined to environment.
- The garbage bin shall be provided at the working area and Supervisor shall ensure its must be collected regularly and disposed off at the approved dumpsite.
- All workers shall ensure that all tools and equipment machinery are in good condition to avoid any oil leakage that could harm to environment.