

Investigation of Physical and Mechanical Properties of Locally Available Aggregates with Different Combinations for Pavement



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1 Introduction

The growing shortage of quality quarried materials and natural gravel for road construction and maintenance is a major challenge facing road agencies. These are finite resources, and the current resources are being exhausted. Gravel quarry products are transported over longer distances, resulting in increased costs for road construction and maintenance. This problem has been exacerbated by the trend towards stricter environmental legislation, legislation on the operation of quarries and requirements for land access, which add to the cost and limit the opportunity to initiate new quarries and to open new gravel pits.

The aggregates are an important structural component of the pavement, and their properties govern the performance and serviceability of the pavement over its service life. As a result, many researchers have stressed the significant impact of Unbound Granular Materials (UGMs) on the engineering performance of pavements [3, 4, 6, 7, 11, 18, 20]. The use of long-lasting, tough, and durable aggregates is, therefore, a primary goal in the development of long-lasting pavements [2, 5, 8, 13]. There are several types of aggregate that can be used for road construction in Malaysia such as granite, sandstone, microtonolite, basalt and limestone. The most common type of aggregate used in Malaysia for road construction is granite. In Sarawak, owing to the increasing road construction projects, the need for quality aggregate for pavement wearing courses has increased drastically. However, due to the geological structure of Sarawak, the production of granite aggregates is low due to the limited resources.

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