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PERANCANGAN GEOMETRIK DAN TEBAL PERKERASAN KAKU AKSES ALTERNATIF HARAPAN MAKMUR - SIMPANG TERAS CAMP STA 0+000

- STA 5+307 KABUPATEN MUSI RAWAS PROVINSI SUMATERA SELATAN

# ABSTRAK

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Perancangan jalan akses alternatif Harapan Makmur – Simpang Teras Camp di Kabupaten Musi Rawas, Provinsi Sumatera Selatan sepanjang 5,307 km dilakukan untuk mendukung efisiensi distribusi bibit dari Unit 15 PT Musi Hutan Persada ke kawasan operasional. Permasalahan distribusi yang kurang efesien mendorong perlunya perencanaan jalan yang mampu menunjang operasional industri secara berkelanjutan, Perancangan ini bertujuan untuk menentukan desain geometrik dan ketebalan perkerasan kaku yang sesuai dengan kondisi medan dan kebutuhan lalu lintas kendaraan berat. Metode perencanaan mengacu pada standar spesifikasi teknis Bina Marga, mencakup desain alinyemen horizontal dan vertikal, struktur perkerasan kaku tipe Beton Bertulang dengan Sambungan, serta bangunan pelengkap seperti saluran samping dan gorong-gorong (*box culvert*), Hasil perancangan menunjukkan bahwa jalan termasuk dalam klasifikasi jalan kolektor kelas II dengan konfigurasi dua lajur dua arah tidak terpisah (2/2-TT). Lebar perkerasan tiap lajur adalah 3,5 meter dan bahu jalan selebar 1,5 meter, masing- masing dengan kemiringan melintang 2%. Jalan ini dirancang untuk dilalui kendaraan berat dengan kecepatan rencana 60 km/jam. Pada alinyemen horizontal terdapat empat tikungan, terdiri dari dua tikungan tipe *Full Circle* dan dua tipe *Spiral–Circle–Spiral*. Alinyemen vertikal mencakup 17 lengkung, terdiri dari 9 cekung dan 8 cembung, Struktur perkerasan terdiri dari beton mutu Fs 4,5 MPa setebal 22 cm, dilapisi lantai kerja mutu Fc 11 MPa setebal 15 cm, serta fondasi bawah menggunakan agregat kelas A dan B masing-masing setebal 20 cm. Bangunan pelengkap berupa saluran samping dengan dimensi 0,5 × 1,0 meter dan *box culvert* tipe single berukuran 1,0 × 1,0 meter. Estimasi anggaran proyek mencapai Rp119.934.600.000,00 dengan durasi pelaksanaan selama 99 hari kerja, Perencanaan ini menghasilkan desain jalan yang memenuhi aspek teknis, fungsional, dan ekonomis, serta diharapkan dapat menjadi acuan bagi pengembangan jalan akses industri di wilayah dengan karakteristik medan serupa.

**Kata Kunci** : Jalan kolektor, Geometrik jalan, Perkerasan kaku, Bina Marga, Musi Rawas, Jalan industri.

GEOMETRIC AND THICK DESIGN OF RIGID PAVEMENT ALTERNATIVE ACCESS HARAPAN MAKMUR - SIMPANG TERAS CAMP STA 0+000 - STA 5+307 MUSI RAWAS REGENCY, SOUTH SUMATRA PROVINCE

# ABSTRACT

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The design of an alternative access road from Harapan Makmur to Simpang Teras Camp in Musi Rawas Regency, South Sumatra Province, covering a total length of

5.307 kilometers, was conducted to improve the efficiency of seedling distribution from Unit 15 of PT Musi Hutan Persada to its operational areas. The inefficiency of existing distribution routes necessitated a road planning effort capable of supporting industrial operations sustainably, This design aimed to determine the geometric layout and the rigid pavement thickness suitable for the terrain conditions and traffic loads, particularly heavy vehicles. The planning methodology referred to the Bina Marga technical specifications, which include the design of horizontal and vertical alignments, rigid pavement structure of the Jointed Reinforced Concrete Pavement (JRCP) type, and supporting structures such as side drains and box culverts, The results of the design indicate that the road is classified as a Class II collector road with a two-lane, two-way undivided (2/2-TT) configuration. Each lane is 3.5 meters wide, and the shoulders are 1.5 meters wide on each side, both with a cross slope of 2%. The road is designed for heavy vehicle traffic with a design speed of 60 km/h. The horizontal alignment consists of four curves: two Full Circle and two Spiral–Circle–Spiral (SCS) types, while the vertical alignment comprises 17 vertical curves, including 9 concave and 8 convex curves, The pavement structure includes a 22 cm thick concrete slab with a flexural strength of Fs 4.5 MPa, overlaid on a 15 cm thick lean concrete layer with a compressive strength of Fc 11 MPa. The sub-base consists of Class A and Class B aggregates, each 20 cm thick. Supporting drainage structures consist of rectangular side drains measuring 0.5 × 1.0 meters and single-type box culverts with dimensions of 1.0 ×

1.0 meters. The estimated project cost is Rp119,934,600,000.00, with a projected construction duration of 99 working days, This planning produces a road design that meets technical, functional, and economic standards and is expected to serve as a reference for future industrial access road developments in areas with similar terrain characteristics.

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**Keywords:** Collector Road, Geometric design, Rigid pavement, Bina Marga, Musi Rawas, Industrial road.