

ABSTRAK

PERENCANAAN GEOMETRIK DAN TEBAL PERKERASAN LENTUR ALTERNATIF JALAN PT.TATA BARA UTAMA STA 0+000 – STA 5+730 KABUPATEN MUSI BANYUASIN PROVINSI SUMATERA SELATAN

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Pembangunan infrastruktur jalan memiliki peranan penting dalam meningkatkan aksesibilitas, kelancaran transportasi, serta mendukung pertumbuhan ekonomi suatu wilayah. PT. Tata Bara Utama di Kabupaten Musi Banyuasin membutuhkan jalan alternatif yang mampu menunjang aktivitas angkutan hasil tambang secara aman dan efisien. Oleh karena itu, dilakukan perencanaan geometrik jalan, perencanaan tebal perkerasan lentur, bangunan pelengkap jalan, serta penyusunan manajemen proyek dan Rencana Anggaran Biaya (RAB). Perencanaan geometrik mengacu pada Pedoman Desain Geometrik Jalan Tahun 2021, sedangkan perencanaan tebal perkerasan mengacu pada Manual Desain Perkerasan Jalan (MDPJ) Tahun 2024.

Tahapan perencanaan meliputi penentuan trase jalan, perhitungan alinyemen horizontal dan vertikal, perhitungan volume galian dan timbunan, analisis nilai CBR tanah dasar, penentuan struktur perkerasan, perencanaan bangunan pelengkap, serta penyusunan manajemen proyek dan RAB. Hasil perencanaan menunjukkan bahwa trase jalan yang direncanakan telah memenuhi aspek keselamatan, kenyamanan, dan efisiensi sesuai standar yang berlaku. Nilai CBR tanah dasar sebesar 3,7% ditingkatkan melalui stabilisasi menggunakan timbunan pilihan sehingga mencapai 14,8%, sehingga memenuhi persyaratan minimum untuk perencanaan struktur perkerasan. Selain itu, bangunan pelengkap jalan telah direncanakan untuk mendukung fungsi jalan dan menjaga kondisi perkerasan, sedangkan manajemen proyek dan RAB disusun sebagai pedoman pelaksanaan pekerjaan konstruksi.

Berdasarkan hasil perencanaan tersebut, diperoleh desain jalan yang memenuhi persyaratan teknis, aman, nyaman, ekonomis, serta mampu mendukung kelancaran transportasi pada ruas jalan alternatif PT. Tata Bara Utama.

Kata Kunci: geometrik jalan, perkerasan lentur, alinyemen horizontal, alinyemen vertikal, CBR, stabilisasi tanah dasar, Rencana Anggaran Biaya (RAB).

ABSTRACT

Geometric Design and Flexible Pavement Design for the Alternative Access Road of PT. Tata Bara Utama from STA 0+000 to STA 5+730, Musi Banyuasin Regency, South Sumatra Province

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Road infrastructure development plays an important role in improving accessibility, facilitating transportation, and supporting regional economic growth. PT. Tata Bara Utama in Musi Banyuasin Regency requires an alternative road capable of supporting coal transportation activities safely and efficiently. Therefore, this study was conducted to design the road geometry, flexible pavement structure, road supporting facilities, project management, and cost estimation. The geometric design was carried out based on the 2021 Road Geometric Design Guidelines, while the pavement design referred to the 2024 Pavement Design Manual (MDPJ).

The planning process included route selection, horizontal and vertical alignment design, cut and fill volume calculations, subgrade CBR analysis, pavement thickness design, road supporting facilities planning, and preparation of project management and cost estimation. The results indicate that the proposed road alignment meets the required standards of safety, comfort, and construction efficiency. The initial subgrade CBR value of 3.7% was improved through stabilization using selected fill material, resulting in a CBR value of 14.8%, which satisfies the minimum design requirement for pavement construction. Furthermore, the road supporting facilities were designed to improve road performance and preserve pavement quality, while the project management plan and cost estimation were prepared as guidelines for construction implementation.

Overall, the proposed road design fulfills the applicable technical standards and is expected to provide a safe, comfortable, economical, and reliable transportation facility for the alternative road of PT. Tata Bara Utama.

Keywords: road geometric design, flexible pavement, horizontal alignment, vertical alignment, California Bearing Ratio (CBR), subgrade stabilization, cost estimation.