

**EVALUASI PERANCANGAN STRUKTUR JEMBATAN *SLAB ON PILE*
PADA RUAS JALAN LETTU KARIM KADIR GANDUS BANYUASIN
SUMATERA SELATAN**

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ABSTRAK

Ruas Jalan Lettu Karim Kadir Gandus Banyuasin, Sumatera Selatan sering mengalami kerusakan berulang berupa retak, deformasi, dan penurunan badan jalan akibat kondisi tanah lunak serta beban lalu lintas yang berat. Untuk mengatasi permasalahan tersebut, dilakukan evaluasi perancangan struktur jembatan *slab on pile* bentang 67,5 meter sebagai sistem struktur yang mampu menyalurkan beban langsung ke lapisan tanah keras melalui tiang pancang. Perancangan ini mencakup struktur atas, struktur bawah, bangunan pelengkap, serta manajemen proyek berupa Rencana Anggaran Biaya dan jadwal pelaksanaan. Analisis dilakukan dengan mengacu pada standar pembebanan jembatan, perencanaan beton bertulang, serta pemodelan struktur menggunakan STAAD Pro. Hasil perancangan menunjukkan pelat lantai kendaraan memiliki panjang 67,5 m, lebar 9,6 m, dan tebal 0,45 m dengan tulangan D19-125 mm. Struktur fondasi menggunakan tiang pancang beton pratekan diameter 800 mm mutu beton f_c' 50 MPa hingga kedalaman 24 m. Bangunan pelengkap meliputi dinding sandaran, trotoar, drainase PVC diameter 6 inch, dan landasan elastomerik. Total biaya pembangunan direncanakan sebesar Rp. 8,415,823,050.00 dengan waktu pelaksanaan 174 hari.

Kata kunci: *slab on pile*, tanah lunak, tiang pancang, STAAD Pro, RAB.

EVALUATION OF THE DESIGN OF THE SLAB ON PILE BRIDGE STRUCTURE ON THE LETTU KARIM KADIR GANDUS BANYUASIN SOUTH SUMATERA ROAD SECTION

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ABSTRACT

The Lettu Karim Kadir Gandus road section in Banyuasin, South Sumatra, experienced repeated damage in the form of cracks, deformation, and settlement due to soft soil conditions and traffic loads. To address these issues, an evaluation was conducted on the structural design of a 67.5meter span slab on pile bridge as a structural system capable of transferring loads directly to hard soil layers through piles. This design includes superstructure, substructure, additional buildings, and project management in the form of a Cost Budget Plan and implementation schedule. The analysis was carried out by referring to bridge loading standards, reinforced concrete design, and structural modeling using STAAD Pro. The design results show that the vehicle floor slab has a length of 67.5 m, a width of 9.6 m, and a thickness of 0.45 m with D19-125 mm reinforcement. The foundation structure uses prestressed concrete piles with a diameter of 800 mm with a concrete quality of f_c' 50 MPa to a depth of 24 m. Complementary buildings include retaining walls, sidewalks, 6-inch diameter PVC drainage, and elastomeric foundations. The total construction cost is planned at IDR 8,415,823,050.00 with an implementation time of 174 days.

Keywords: slab on pile, soft soil, piles, STAAD Pro, RAB.