

ABSTRAK

Tujuan dari penelitian ini adalah untuk mengaplikasikan *value engineering* dan melakukan analisis teknis pada Proyek Pembangunan Jembatan Rangka Baja dengan Sistem Pelengkung. Jembatan Tebat Gheban dibangun dengan panjang 90 meter, dan lebar 9,80 meter. Analisis dilakukan pada tahap I pelaksanaan pekerjaan konstruksi bangunan bawah jembatan khususnya pondasi abutment jembatan.

Dalam *value engineering* terdapat beberapa tahap untuk melaksanakan *value engineering* yaitu tahap informasi, tahap spekulasi, tahap analisa, tahap pengembangan, dan tahap penyajian.

Hasil dari analisis diperoleh dua alternatif untuk menggantikan desain awal yaitu alternatif I seluruh pondasi abutment menggunakan tiang pancang beton pracetak prategang persegi ukuran 0,5x0,5 m dengan kedalaman tiang 12 meter, dan alternatif II seluruh pondasi abutment menggunakan pondasi bored pile diameter 0,6 m dengan kedalaman tiang 12 meter. Dari hasil perhitungan teknis pada pekerjaan pondasi abutment diperoleh nilai dukung ijin tiang pada alternatif I sebesar 18785,00 kN dan nilai dukung ijin tiang pada alternatif II sebesar 18431,32 kN. Biaya desain awal atau pondasi tiang pancang beton pracetak prategang diameter 0,5 m yaitu Rp. 12.759.977.233 kemudian setelah diterapkan *value engineering* maka diperoleh biaya alternatif I sebesar Rp. 12.751.336.461 penghematan yang diperoleh pada alternatif I sebesar Rp. 8.640.772 atau 0,1 %, dan alternatif II diperoleh biaya sebesar Rp. 12.363.063.085 penghematan yang diperoleh sebesar Rp. 396.914.148 atau 3,1 %.

Kata Kunci : Value Engineering, Jembatan, Tiang Pancang, Bored Pile

ABSTRACT

The objective of the research is to apply value engineering and do technical analysis on a conventional concrete bridge construction project by curve system. Gheban Bridge was built with a length of 90 meters and width of 9.80 meters. The analysis was conducted on phase I of the under construction bridge, namely bridge abutments foundations.

In value engineering; there are several stages to implement value engineering, they are: the information stage, the stage of speculation, the analysis stage, the development stage, and the stage of presentation.

The results Of analysis the two alternatives obtained to replace the first design, they are: alternatives I, whole abutment foundation using precast prestressed concrete pile in size of 0,5x0,5 meters with a depth 12 meters and alternative II, the entire abutment foundation using bored pile foundation in a diameter of 0.6 meters with a depth 12 meters. And the results of technical calculation on abutment foundation construction obtained the carrying value of permit pile at alternative I was 18785,00 kN and the carrying value of permit pile at alternative II was 18431,32 kN. The cost of initial design or prestressed and precast concrete pile foundation at diameter of 0.5 m was Rp. 12,759,977,233. Then after value engineering was applied, it was obtained that alternative cost was Rp. 12.751.336.461. The saving obtained at alternative I was Rp. 8.640.772 or 0,1 %, and at alternative II the cost obtained was Rp. 12.363.063.085. The saving obtained was Rp. 396.914.148 or 3,1 %.

Key Words : Value Engineering, Bridge, Pile, Bored Pile