

INTISARI

AGUS PRIYANTO, 2022, Metode Pelaksanaan Produksi *Corrugated Concrete Sheet Piles* (CCSP) Dan Evaluasi Nilai *Strand* Berdasarkan Persentase Deviasi Elongasi (Studi Kasus Pekerjaan *Stressing Corrugated Concrete Sheet Piles* (CCSP) Di PT. Adhi Persada Beton). (dibimbing oleh Agus Kurniawan, S.T., MT, Ph.D.)

Proyek Jalan Tol Semarang - Demak merupakan merupakan salah satu Proyek Strategis Nasional (PSN) yang berada di Provinsi Jawa Tengah. Kehadiran Jalan Tol ini diharapkan dapat mendukung peningkatan konektivitas dan peningkatan ekonomi di wilayah Jawa Tengah, adapun jalan tol ini memiliki fungsi lain yaitu mengatasi penurunan muka tanah dan membendung banjir rob melalui sistem polder dengan menampung aliran air pada kolam retensi.

Pada kolam retensi menggunakan produk *precast* yaitu *Corrugated Concrete Sheet pile* (CCSP) dengan *type* W325B produksi PT. Adhi Persada Beton, Produk merupakan beton prategang, dalam pelaksanaannya *strand* diberikan tegangan dengan menggunakan *hydraulic jack* melalui sistem *pre-tensioning*. Maka dari itu pengawasan melalui perhitungan persentase deviasi elongasi *tendon* akibat *stressing* perlu dilakukan. Dari uraian diatas, tujuan penelitian ini adalah untuk menganalisis metode pelaksanaan produksi *Corrugated Concrete Sheet Piles* (CCSP) dan evaluasi nilai *strand* berdasarkan persentase deviasi elongasi.

Pelaksanaan produksi dibagi menjadi 7 (tujuh) tahapan, yaitu Persiapan Alat dan Bahan, Persiapan Meja Produksi Cetakan/*Moulding*, *Instal PC Strand* dan *Stressing*, Pembesian dan *Check List*, *Pouring/Pengecoran*, *Demoulding* dan *Release PC-Strand* dan *Handling* dan *Finishing*. Pekerjaan *stressing* dilakukan dengan metode penarikan satu arah dengan dibantu oleh sistem pengangkuran. Evaluasi nilai persentase deviasi elongasi menggunakan ketentuan ACI 318 pasal 18.18, SKSNI 1991 pasal 3.11.18, dan SNI 7833-2012 pasal 6.20.1, yaitu persyaratan nilai persentase deviasi elongasi untuk *pre-tensioning* berada diantara $\pm 5\%$. Nilai elongasi teoritis sebesar 705,24 mm, sementara itu, rata-rata nilai elongasi aktual sebesar 735 mm dan rata-rata hasil nilai persentase deviasi elongasi sebesar 4,22%, Seluruh hasil nilai persentase deviasi elongasi berada diantara $\pm 5\%$, sehingga seluruh tegangan *strand* telah memenuhi syarat teknis.

Kata Kunci : *Precast, Stressing, Pre-Tensioning, Corrugated Concrete Sheet Pile*, Metode Pelaksanaan.

ABSTRAK

AGUS PRIYANTO, 2022, *Method of Implementing Production of Corrugated Concrete Sheet Piles (CCSP) and Evaluation of Strand Value Based on Elongation Deviation Percentage (Case Study of Stressed Corrugated Concrete Sheet Piles (CCSP) Work at PT. Adhi Persada Beton)*. (supervised by Agus Kurniawan, S.T., MT, Ph.D.)

The Semarang - Demak Toll Road Project is one of the National Strategic Projects (PSN) in Central Java Province. The presence of this toll road is expected to support increased connectivity and economic improvement in the Central Java region. Meanwhile, this toll road has another function, namely overcoming land subsidence and stemming tidal floods through a polder system by collecting water flow in retention ponds.

The retention pond uses a precast product, namely Corrugated Concrete Sheet Pile (CCSP) with type W325B produced by PT. Adhi Persada Beton, the product is prestressed concrete, in its implementation the strand is tensioned using a hydraulic jack through a pre-tensioning system. Therefore, monitoring by calculating the elongation percentage of tendon deviation due to stress needs to be carried out. From the description above, the aim of this research is to analyze the production method of Corrugated Concrete Sheet Piles (CCSP) and evaluate the strand value based on the elongation deviation percentage.

Production implementation is divided into 7 (seven) stages, namely Preparation of Tools and Materials, Preparation of Mold/Moulding Production Tables, Installing PC Strand and Stressing, Casting and Check List, Pouring/Casting, Demoulding and Release PC-Strand and Handling and Finishing. Stressing work is carried out using a one-way pulling method assisted by an anchorage system. Evaluation of the elongation deviation percentage value uses the provisions of ACI 318 article 18.18, SKSNI 1991 article 3.11.18, and SNI 7833-2012 article 6.20.1, namely the requirement for the elongation deviation percentage value for pre-tensioning to be between $\pm 5\%$. The theoretical elongation value is 705.24 mm, meanwhile, the average actual elongation value is 735 mm and the average elongation deviation percentage value results are 4.22%. All elongation deviation percentage value results are between $\pm 5\%$, so that all strand tension has met technical requirements.

Keywords : *Precast, Stressing, Pre-Tensioning, Corrugated Concrete Sheet Pile, Implementation Method.*