

**FINAL YEAR PROJECT REPORT
ADVANCED DIPLOMA IN CIVIL ENGINEERING
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SHAH ALAM SELANGOR**


**STATIC ANALYSIS OF
PRESTRESSED CONCRETE SLEEPER**

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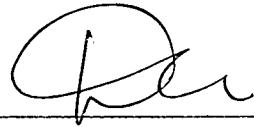
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ABSTRACT

Monoblock prestressed concrete sleeper under the application of static point load was studied. Finite Element Method (ANSYS 5.0 package) was used to analyse the behaviour of P.C.S under such load until it reached failure. To analyse the Prestressed Concrete Sleeper, it was assumed to be constructed of two separate material namely concrete and prestressing steel which were modelled using SOLID 65 element and LINK10 element respectively. Both materials are having materially non-linear characteristics. The prestressing steel was assumed perfectly bonded to the concrete and having bilinear kinematic properties while concrete was assumed isotropic and homogeneous (material independent of location and direction). The static load was applied step by step from 20 kN up to failure load with 20 kN intervals. The behaviour of Prestressed Concrete Sleeper under consideration were stress - strain relationship, load - deflection relationship and stress contour. It was found that the stress -strain relation was linear up to a load of 280 kN and the structure was stiffer with smaller deflection value.