



▲ *Sudirman Flyover, Indonesia.*

The Sudirman flyover is part of a new east-west transportation artery for Jakarta. This new roadway must pass over several other major roads like Jalan H.R., Rasuna Said and Jalan Sudirman. Sudirman is one of the busiest streets in Jakarta so the flyover's construction was originally based on the use of an extensive system of temporary steel supports spanning the street so that the new superstructure could be cast in situ. The flyover has a length of 165 meters with spans of 31, 33, 37, 33 and

31 metres and has a skew angle of 30 degrees. The flyover connects Jalan K. H. Mas Mansyur on the east with Jalan Karet Depan in the west.

PT VSL Indonesia proposed the fly over to be constructed using the Incremental Launch Method in order to reduce interference to local traffic and to avoid the hazardous, time consuming erection and dismantling of a highly loaded temporary supporting system. This alternative proposal was taken up by the main contractor PT Wijaya Karya and approved by the engineer of the Municipality of Jakarta. Subsequently VSL was awarded the construction of the superstructure. The scope of works for VSL included the preparation of the casting yard, reinforcement placement,

casting the segments, post-tensioning, supply of launching noses and launching. With this construction method, traffic on Jalan Sudirman was not restricted, overhead construction was not required meaning that potential risk to traffic and the work force was avoided, and an efficient construction cycle was easily established at ground level with continuous overlapping activities for the two parallel structures.

Construction of the two single cell parallel box girders, which had a width of 8.5 metres and a depth of 1.9 metres, started in December 1992 and was completed in May 1993. There were 10 typical segmental lengths of 14.5 metres and two end segments of 10 metres. The flyover had a 5% grade.

## Scope of works performed

- Preparation of the casting yard, reinforcement placement, casting the segments, post-tensioning, supply of launching noses and launching.

Casting of the segment was done in two operations; the bottom flange first and the webs and top flange second. Straight tendons were used in the top and bottom flanges to provide the needed structural strength for the launching and two parabolic tendons provided the additional strength for the final in service conditions. Two launch noses and two casting yards were required in order to achieve the tight construction schedule required by the contract. The launching operation was carried out using two ZPE 200 jacks and a safety

system was installed with an emergency push button stop operation at every pier.

The safety system also monitored the deflection of the piers; if safe limits were exceeded the launch would be halted. After the launch was completed, diaphragms were cast over the piers and longitudinal post-tensioning tendons installed and stressed. High strength concrete was used to achieve 30 MPa strength at 3 days. This allowed early stressing and a 7 day cycle for typical segments.

**CLIENT**  
City of Jakarta

**CONSULTING ENGINEER**  
PT Bina Karya  
PT Pacific Consultant International  
PT Deserco

**MAIN CONTRACTOR**  
PT Wijaya Karya

**SUPERSTRUCTURE**  
PT VSL Indonesia

**POST-TENSIONING**  
PT VSL Indonesia

**CONSTRUCTION PERIOD**  
December 1992 - May 1993

▼ Incremental Launching clears the traffic.



▼ Efficient construction methods keep project completion on time.



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