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LIST OF FIGURE

- **Cantilever**
  A cantilever bridge is formed of cantilevers projecting from supporting piers. The ends of a cantilever bridge are treated as fixed. A cantilever bridge combines the advantages of a simply supported span and a continuous span. For long spans and deep valleys and at places where it will not be practicable to use cantering, cantilever bridges are more suitable. They are suitable in case of uneven settlement of foundation. The construction of a cantilever bridge may either be of simple type or of balanced type.

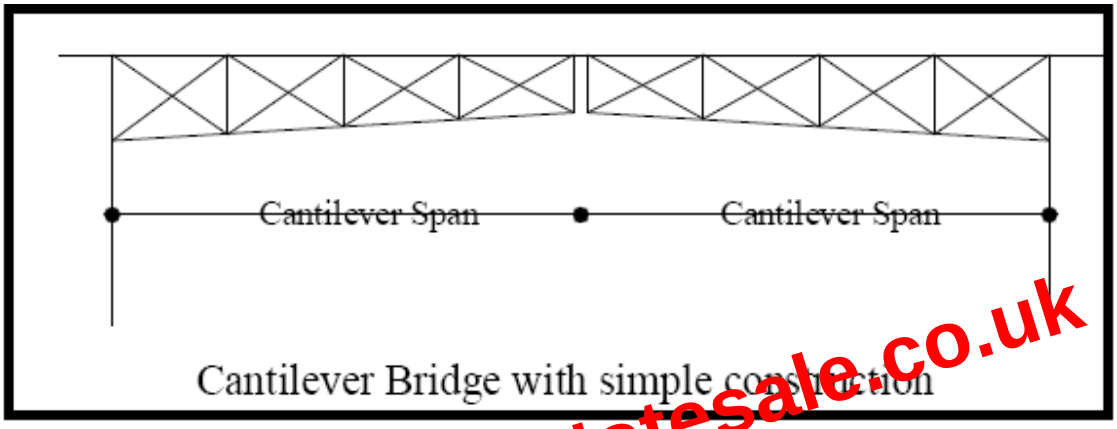

FIG 1

In case of cantilever bridge with balanced type of construction, hinges are provided at the points of contraflexure of a continuous span and an intermediate simply supported span is suspended between two hinges.

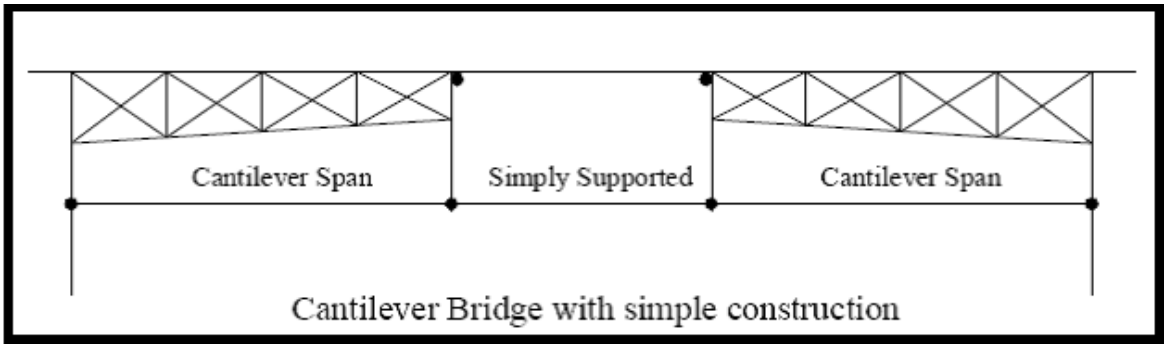

FIG 2

1.3.3 According to the form or type of superstructure as arch, beam, truss, slab, rigid frame or suspension bridges.

- **Slab**

2.3.2.1 Simple Flyovers

FIG 8

In this case, the main road is used for fast traffic, which is made to pass at a high level by a bridge, providing ramps on both the approaches; and the slow traffic is made to pass underneath. Thus the traffics pass at two different levels, and leave no chance for an accident.

2.3.2.2 Grade Separator

FIG 9

The Rotary Grade Separator dovetails the benefits of a rotary with the concept of a flyover. It is essentially a multi-level rotary with traffic segregation at distinct vertical levels on the basis of mode of traffic and not direction alone. We already accept the horizontal segregation of traffic in separate lanes based on direction and within lanes based on speed of travel. The Rotary Grade Separator carries this idea of segregation through to a traffic crossing. While the flyover focuses on enabling fast movement of traffic, it ignores the pedestrians' difficulty in negotiation. The biggest benefit of the Rotary Grade Separator is that it is designed around the human being - the pedestrian and providing him safe and secure movement and access.

4.2.2 Site observation

The following points are the guiding factors for selection of suitable site.

- The site should have more traffic congestion.
- The availability of main materials are to be ascertained
- Rush at Shivaji Square at peak hours.

➢ **Selection of Flyover type Bridge**

We have to select flyover type bridge according to traffic censes.

4.3 Flyover Bridge site selection

The main purpose of the technical field survey is to select the appropriate bridge site.

- The site should optimally serve the local people.
- The selected site must economically justified and have along life span.
- Fulfils the general condition.
- Have stable bank and slope conditions.
- Have shortest possible span.

4.4 General condition for flyover bridge site

The bridge site should fulfil a number of general conditions:

- traditional crossing point
- maximum bridge span
- space for the bridge foundations

240	23.30	
270	23.52	
300	23.76	
330	23.68	
360	23.69	End of backfilling

Table 3

5.2 Specification

All roads, flyovers, etc are designed solely to accommodate the heaviest and tallest vehicle: the fully loaded truck, thus resulting in a gross over design for cars. The slab of a flyover is designed to withstand the 20 tonne weight, (dynamic load) of a fully loaded truck. This results in a slab with box girders that are about 2-3metres deep. Similarly the clear height of the flyover slab is based on the requisite 7-9metres clearance for a truck. The finished slab of the flyover is at 9-12metres. The slope of the flyover ramp is also calculated on the basis of a 1:20 gradient, on the basis of a truck. However, a slope of 1:10 would provide comfortable access for cars. The cost saving alone in the embankments would be considerable. Similarly, by factoring segregation of traffic into design for each aspect, there would be enormous design optimisation and significant cost saving.

5.2.1 Major components of Flyover foundation

Since the bridge has to carry a massive load and its dead weight is also very large so we cannot go for simple foundation but pile foundation. Pile foundation is one type of deep foundation. It is used where the good soil is at higher depth (10 or 15m) or soil having low bearing capacity. Pile is also used for tall structures. In pile foundation the load coming from the super structure is taken by pile cap and equally distributed in no of piles, pile transfers this load into the soil.

- **Piers and Abutments**

The maximum proposed height of the pier for Flyover is about 7-9 m. The piers are M-35 grade rectangular pullers.

The Superstructure is M-40 Grade Deck Slab over precast post-tensioned concrete girders in M-40 Grade Concrete. Anti-skid bituminous mastic course 25 mm in thickness is proposed over RCC wearing course. Gravitational drainage backed by forced system comprising of suitable pump and appurtenances is proposed for underpass drainage. The span length is of range of 25 m to 50 m.