

CHAPTER I

INTRODUCTION

1.1. Background and Problem Statement

Technology in civil engineering has developed rapidly and significantly in the last few decade unexcepted technology of concrete materials, the material which is much used in building construction. The development in technology of concrete materials are not only occur in building construction but also in bridge construction. By developing of concrete technology, have brought concrete with high strength, so that dimension of the bridge structures like beam, deck slab, pier etc, can be reduced significantly. In addition, the concrete technology development have also make the bridge designer enable to design bridge with long span and also streamline in dimension. Before developing in concrete technology, the span of bridge are limited since the dimension of beam must be bigger or higher. If the width of the river or valey wider, than the bridge have to devided into some span with using some piers, as shown in Figure 1.1. [1]



Figure 1.1. Bridge with some spans

Developing of concrete technology, make bridge beam or girder have stream-line dimension but have high strength. The famous shape of bridge girder that made by taking advantage in concret technology is a box girderas shown Figure 1.2. [1]



Figure 1.2. Types of Box Girder

1.2. Box Girder

A box girder bridges, where in this final assignment will be designed and calculated, is a bridge in which the main beams comprise girders in the shape of a hollow box. The box girder normally comprises either prestressed concrete, structural steel, or a composite of steel and reinforced concrete. The box is typically rectangular or trapezoidal in cross-section. Box girder bridges are commonly used for highway flyovers and for modern elevated structures of flight rail transport. Although normally the box girder bridge is a form of beam bridge, box girders may also be used on cable-stayed bridges and other forms. [2]

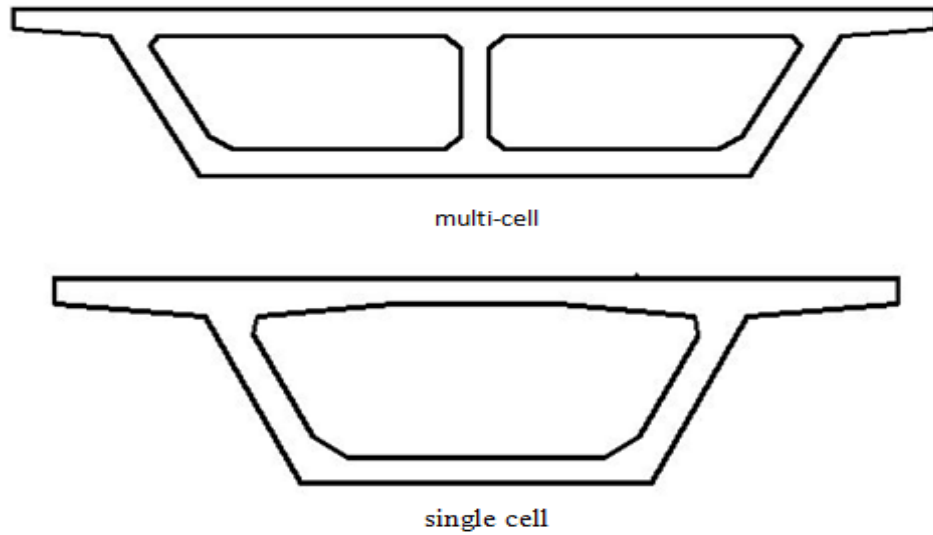


Figure 1.3. Cross section type of box girder

1.3. Objectives of the study

The objectives of the study are:

1. To design prestressed concrete multi cell box girder bridge for highway.
2. To get knowledge how to design of box girder bridge.

1.4. Scope of the study

The scope of this study begins with looking for information and literature review related to design of box girder. Box girder bridge design will be done based on bridge construction standard data and calculation will be given in Chapter 4, while the results will be given and discussed in Chapter 5. In addition, design drawing will be given in attachment.