

CHAPTER I

INTRODUCTION

1.1 Background of study

Batam is an island and surrounding by sea. Batam also known as an industrial city including shipyard field. As a city which moves the economy in marine engineering and shipyard field, infrastructure must be an essential part to be provided, such as wharf or jetty, factory, roads, etc.

Batam is well-known as shipyard industry-build and repairing ship including offshore job. There are a lots of companies and corporation which establish and turn on the job in this field. Each companies must have its own infrastructure to support their job, such as wharf or graving dock.

Wharf is a facility of a port that used for mooring ships doing loading and unloading goods or passengers. Shape and dimension of the wharf depend upon type and size of the ships that mooring at the wharf. Wharf must be design and plan properly in order any ships may moor, berth and doing any activities at it safely, quickly and smoothly (Triatmojo, 2009).

Paxocean is one of companies at shipyard field and marine engineering located in Batam. Nowadays, demand of ship repairing increase. Therefore, PT. Paxocean build up their infrastructure to get enough space for repairing ships. Paxocean is now designing and will construct a wharf for particular purpose. Wharf at Paxocean is using for repairing ships and is not using for loading or unloading any goods or passenger. Wharf will be used for repairing ship with capacity 20.000 DWT. Any ships with capacity lower than 20.000 DWT also fit to use facility of this wharf. The wharf must be designed and planned properly for its purpose for repairing ship. The wharf must be designed to holds live loads and all forces act to its structure such as berthing force and mooring force. Notice the developments and all the potential, in this thesis will be studied about the structure design of wharf at Paxocean that will be constructed and operated for repairing ships. The structure must be designed and planned as well. The structure of wharf comprise foundation system, slab, fender, bollard and piling system as open pile structure or sheetpile if required as retaining wall for wharf.

1.2 Define of problems

Based on analysis of the above background, problems to be solved as following :

1. How to design structural of wharf with capacity 20.000 DWT ?.
2. What influences designing of wharf ?.

1.3 Objective of Study

In this thesis, considering above problems, objective of this study as following :

1. To design structure of wharf with capacity 20.000 DWT.
2. To know what influences wharf design.

1.4 Benefit of study

In this thesis, there are some benefits, as following :

1. As a knowledge and process for student in design structure of wharf
2. To improve skill in analysing structure calculation of wharf.

1.5 Scope of Problems

Scope of problems for this thesis as following :

- a. Layout of the wharf at this thesis based on layout given by PT. Paxocean as per master plan.
- b. Design of the facilities of terminal is out of topic for this thesis. All facilities already established by PT. Paxocean and this wharf is a replenishment only for particular purpose.
- c. In this thesis, the structure to be design are slab, fender, bollard and sheetpile as retaining wall.
- d. Slab is designed to resist 2,5 t/m².
- e. Rope for mooring is not designed in this thesis.
- f. Earthquake is not considering for structural analyzing in this thesis due to the location of wharf is in Batam, Riau Island, therefore earthquake is considered to be zero.