



**DEPARTMENT OF BUILDING  
UNIVERSITI TEKNOLOGI MARA (PERAK)**

**REPAIRING THE RUBBLE OF THE RIVER BANK**

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It is recommended that the report of this practical training provided

**By**

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**entitled**

**REPAIRING THE RUBBLE OF RIVER BANK**

be accepted in partial fulfillment of requirement has for obtaining Diploma in Building.

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**STUDENT'S DECLARATION**

I hereby declare that this report is my own work, except for extract and summaries for which the original references stated herein, prepared during a practical training session that I underwent at Exxomas Sdn Bhd for duration of 20 weeks starting from 23 August 2021 and ended on 7 January 2021. It is submitted as one of the prerequisite requirements of BGN310 and accepted as a partial fulfillment of the requirements for obtaining the Diploma in Building.

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I also want to thank to all UITM lecturers that have teaches me during my Diploma in Building so that I will be able to understand experiences myself about and how the real working environment. This practical training has given me an opportunity to experience what it's like to work in this division. The knowledge that I have gain from this practical training will be used for my future as well as possible.

Finally, I want to thank everyone that has helped me so far especially my beloved family and fellow friends. However, my friends are always helped and support me to face any obstacles during my practical industrial period.

## **ABSTRACT**

Objective of this research is to know the construction method of Repairing the rubble of riverbank at Jalan Pohon Celagi, Pasir Mas, Kelantan. Besides, can learn more knowledge about study the factors that required in construction. I also be able to identify the material used in construction and identify the machineries that used in this project construction. This contract period of this project is 9 months which start at August 2021 and will be complete in May 2022. The contract value of this project is RM .Method of the study that perform in this project is observation and interview.

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## **CHAPTER 1.0**

### **INTRODUCTION**

#### **1.1 Background of study**

The occurrence of riverbank collapses often occurs in parts of the soil structure that are not solid. It is a natural process in stable river. This construction project is about to repair the rubble area at an immediate rate at Sungai Kelantan nearby Bandar Pasir Mas. This has caused some families at Kampung Celagi have lost their properties such as cars and houses.

The technique or way to repair the rubble area is use the Riprap. Riprap also known as rip-rap, shot rock or rock armour. Riprap is a permanent layer large, angular stones, cobbles, and boulders. These types of stones are typically used to support, armor and stabilize to protect or avoid the soil layer from collapse into the river. Riprap is used to strengthen the riverbank structure with high erosive power by increasing roughness of the surface. It is also function to slowdown the velocity of runoff. Riprap is also effective for protecting and stabilizing slopes, channels, streambanks, and shorelines.

In addition to the riprap techniques, there are many ways to avoid the riverbank from collapse such as trap bag, gabions and mattresses, sacks and blocks, concrete mattresses, soil cement and retaining walls.

#### **1.2 Objectives**

There are a few objectives that needed to be fulfilled during this practical training, the objectives are as follow:

- a) To determine the method of the construction
- b) To identify the machineries that used in this project
- c) To identify the problems occurs at construction site

### **1.3 Scope of study**

The practical study has been carried out at riverbank of Sungai Kelantan which is located in Kampung Celagi, Bandar Pasir Mas, Kelantan. The scope of study focuses more on doing repairing and maintenance of the Sungai Kelantan riverbank that has been collapsed. It will cover about how to repair the rubble area because of soil erosion. Repairing works has been started immediate to ensure that the area can be safely to the citizens and free from any damage that could endanger people's lives. The study concentrates mainly on how it can collapse and the how or what techniques that can be used to repair the. The study also covers on what type of material and tools would be suitable to be used for every situation and problem. This project use equipment and machineries such excavator. The process of doing repairing works requires professionals' workers to make sure the process of repairing run smoothly and done as soon as possible. The methods used were observation and interview.

### **1.4 Methods of study**

#### **a) Observation**

The first methods of study used during the practical training is observation. The first thing to do when conducting this project is to make an observation or site visit at the construction area. This method useful to know more about the project info. It's done by inspecting the rubble area that collapsed into the river. The information will be recorded. By using the information recorded, a solution on the repairing work can be provided. The problems have been observed and the solution will be provided in which the repairing work will be carried out using proper tools and materials.

#### **b) Interview**

I also use this method to interview people in charge or my supervisor to ask all relevant things about the project construction. Using this method, I can gain more knowledge and information about the project.

## CHAPTER 2.0

### COMPANY BACKGROUND



Figure 1: Jabatan Pengairan Dan Saliran Pasir Mas

#### 2.1 Introduction of company

Department of Irrigation and Drainage, Pasir Mas (Jabatan Pengairan dan Saliran Negeri Kelantan Jajahan Pasir Mas) is located at Jalan Padang To'La, 17000 Pasir Mas, Kelantan Bandar Pasir Mas. It was established in 1932 and was given responsibility to provide infrastructure for paddy cultivation. The role of DID has the expanded to several others areas including water resources management, river and coastal management, flood mitigation, hydrology and urban drainage. Therefore, the Department of Irrigation and Drainage is established in each state to handle all its main activities so that it is more systematic and more organized for current and future use.

## Organization Profile

Company name : Jabatan Pengairan dan Saliran Negeri Kelantan Jajahan Pasir Mas.

Company address : Jalan Padang To'La, 17000 Pasir Mas, Kelantan Darul Naim.

Contact info : 09-7909053

Website : <https://did.kelantan.gov.my/>

Year of incorporation : 1932

## Company organization chart

The organization chart below shows that the role and the responsibilities that have to be carried by every individuals that work under the IMHOME company. The executive chairman and chief executive officer is the highest role and can give any orders about construction activities. The responsibilities and task is followed based on positioning shown in Figure ? below.

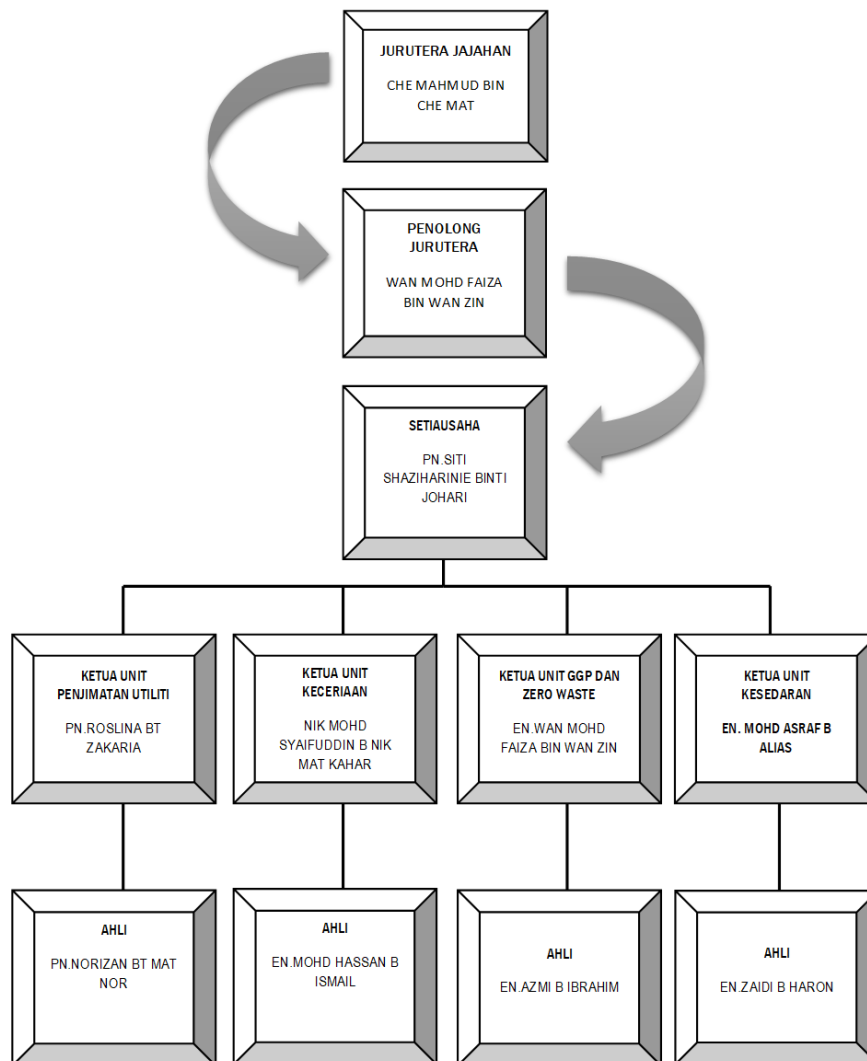


Figure2: Main office organization chart

## List of Project

No.	Project title	Project value	Start date	Completion date
1	Kerja-kerja pemuliharaan sungai untuk mengurangkan risiko banjir di Kampung Alor Tembusu.	RM 100,000	1/6/2021	24/8/2021
2	Kerja-kerja pengukuhan integriti dan keselamatan jambatan di Serdang, Pasir Mas.	RM 10,000	21/11/2021	25/11/2021
3	Kerja-kerja menaiktaraf jalan pertanian serta kerja berkaitan di Jalan Meranti Inderground 5, Pasir Mas.	RM 19863.30	3/10/2021	13/10/2021
4	Kerja-kerja pemuliharaan sungai untuk mengurangkan risiko banjir di Kampung Kuala Itik, Pasir Mas.	RM 50,000	1/6/2021	10/8/2021

Table 1: List of completed project

### 2.4.1 List of Completed Project with Photograph

1. Project name:

Kerja-kerja menaiktaraf saluran sedia ada bagi mencegah banjir serta kerja berkaitan di Kg. Banggol Setol, Pasir Mas.

2. Project value:

RM 15,000

3. Tarikh mula:

21/6/2021

4. Tarikh siap:

6/7/2021



Figure3 : Completed project



1. Project name:

Kerja-kerja penyelenggaraan system pengairan dan saliran pertanian di skim bakat 2A,  
Rantau Panjang Kelantan.

2. Project value:

RM 20,000

3. Tarikh mula:

22/8/2021

4. Tarikh siap

19/9/2021



Figure 4: Completed project

1. Project name:

Kerja-kerja pemuliharaan sungai untuk mengurangkan risiko banjir di Kg. Bukit Sungkai, Pasir Mas, Kelantan.

2. Project value:

RM99850

3. Tarikh mula

1/6/2021

4. Tarikh siap

24/8/2021



Figure 5: Completed project

## CASE STUDY

### 3.1 INTRODUCTION OF CASE STUDY

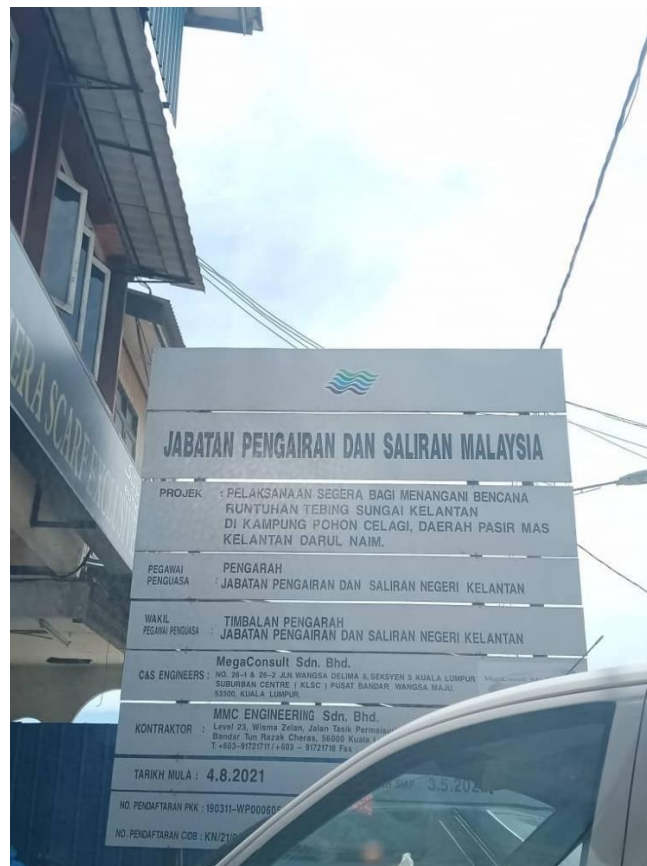


Figure 6: Front View of Project Signboard

The case study of this report is about the construction of repairing the rubble of river bank located at Kampung Celagi, Pasir Mas, Kelantan. This construction was conducted by Jabatan Pengairan Dan Saliran Negeri Kelantan. This case study is to repair the rubble of Sungai Kelantan riverbank that has been damaged.

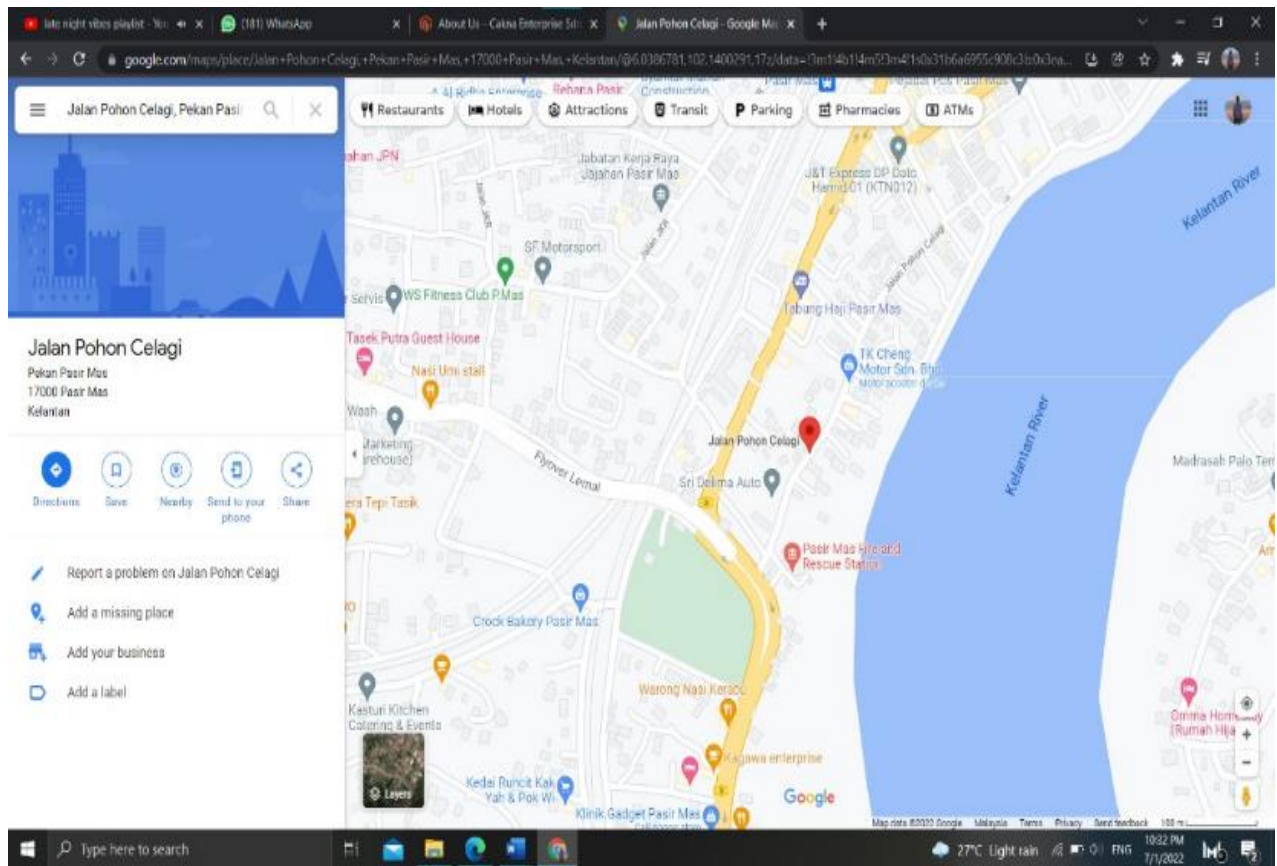


Figure 7: The location of the construction project

This project takes about 9 months which is began from August 2021 and will complete in May 2022 but this project may be delayed for reasons such as heavy rain or flooding. This is to avoid any problems and injuries that can occur at the site construction. This construction is handled by the skilled labourers and semi-skilled labourers to make sure that everyone can involve in this project construction. This project must be finish as soon as possible because this damage has caused some families at Kampung Pohon Celagi have lost their properties such as cars and houses.





Figure 8: Excavation work

Working hours for the workers are from 8.00 a.m. to 5.00p.m., Sunday to Thursday and depends on the weather and conditions. The parties that involved in this project must follow all the rules and instructions to avoid any accidents and desirable things happen at site construction. The total costs for this project is RM

### 3.2 The method of construction



Figure 9: Excavation work

Excavation work is in progress to removal of earth, rock or other material area the riverbank that collapsed into the river. A few machines such as excavator are required to do some excavation work.

The placement of the Rip Rap is depends on the following designs characteristics:

- Rock size, weight, and gradation
- Rock shape and quality
- Embankment slope
- Thickness of riprap
- Stability and effectiveness of the filler





Figure 10: Rip rap stone

Random rip rap stones consist of various sizes that produces a dense, uniform, stable layer of stone with no large voids. The size of rip rap stones is sufficient to armour the riverbank from collapsed. Rip rap stones is a permanent layer of large, angular stone, cobbles or boulders typically used to withstand and protect the riverbank or soil layer against erosion and collapsed.



Figure 11: Rip rap stone

The shape, quality and gradation of the rip rap stone size is determined by other design criteria. Under-sizing riprap could greatly reduce its effectiveness. It is important to choose the right size based on specifications and quality to ensure the excellent effectiveness



### 3.3 Machineries and tools that used in this project



Figure 12: Excavator

Excavator was used to make the earthmoving work that feature a bucket, arm, rotating cab, and movable tracks. These heavy machineries can make a superior digging and mobility, allowing this type of heavy machineries to work in various type of conditions and surroundings.



Figure 13: Dump truck

The truck is used for transporting materials such as dirt, gravel during running the excavation work waste. This truck is equipped with an open-box bed, which is hinged at the rear and equipped with hydraulic rams to lift to dump the material in the bed. Its also use to transport the rip-rap stone from factory to the site construction.

### **3.4 Problem occur at construction site**

There are many problems that often occur during the construction project is carried out. The first one is problems encountered is the factory materials or items are not arrived in accurate time at the site. This problem can make the construction delay and can't be done in an accurate time. If the building materials are not arrived on site, the workers can't do the work consistently.

Next, the next problem that often occurs on the site is that the building materials delivered by the hardware are poor quality and can't be used. This problem can cause a lot of waste of money to the company and other parties involved. The poor quality of materials can give a big impact to the project.

Running out of materials resources in the plant or factory also can be a big problem to project. The construction work can't be carried out without materials. In addition, insufficient carpentry skills are also a big problem in managing a construction project. This will cause a delay to complete the project in accurate time.

## 4.0 CONCLUSION

### Conclusion

Based on my observation at construction site with the help Encik Faiza and the all-site supervisors and engineer, plus some research and my experience on the construction of roadwork, the following conclusion and recommendation can be made.

Throughout the process of the construction. the author can study and learn the process of construction, the types of material used, type of testing and types of machinery that was used in construction. Besides that, the author also learned without supervision by supervision by skilled and knowledge of construction, there are many disadvantages will be happened if the process or method that used not follow the actual method and it can be increase the cost of maintenance. I also learned that safety while doing the construction work is especially important for laborers. The importance of wearing safety equipment is to protect oneself from being inflicted by minor or major injuries. Before starting a construction project, the Supervisor must do research first such as soil condition, site area, entrance of hardware truck and more. During the project, the supervisor must monitor and research the work of the craftsman and if there is a problem such as the installation of the house structure is not correct then immediately give a reprimand and make a report to the office regarding the problem.

Overall, the objectives of this practical report which to learn the process of construction, the, the types of machinery and problem occurs in construction site.

## Interview

This study also has interviewed few workers in this company such as quality inspection, supervisor, and clerk of works.

## Internet

<https://did.kelantan.gov.my/index.php/hubungi/alamat-jajahan>

<https://www.ayresassociates.com/what-is-riprap-and-why-it-rocks>