



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

BUILDING UPGRADING WORKS

Prepared by:

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(2019448374)

DEPARTMENT OF BUILDING
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING
UNIVERSITI TEKNOLOGI MARA
(PERAK)

AUGUST 2021

It is recommended that the report of this practical training provided

By

MUHAMAD FAREEZ SYAHMI BIN MOHD KAMAL
(2019448374)

Entitled

Building Upgrading Works

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

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DEPARTMENT OF BUILDING
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING
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(PERAK)

AUGUST 2021

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 JKR (D) Kulai for duration of 20 weeks starting from 23 August 2021 and ended on 7 January 2022. 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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UiTM ID No : 2019448374

Date : 29/11/2021

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Last but not least, I want to express my gratitude to my loving parents for all of their efforts over the years. Thank you so much.

ABSTRACT

Building is a very important thing where it can meet some of the needs of society for example its main functions include providing protection from the elements, security, living space, privacy, storing commodities, and allowing people to live and work comfortably. therefore, this report will discuss on how to prepare work documents by direct appointment as well as the correct format in the preparation of work documents based on contractor documents for the completed project and also my involvement in the process of preparing work procurement documents by direct appointment for work - drainage system maintenance work at PWD Kulai district as well as other - other related work. The goal of this study is to show you how to efficiently generate work papers such as quotations and work procurement documents via direct appointment. It will concentrate on becoming skilled at identifying the best construction method to use. and concentrate on being able to create technical drawings that are both accurate and easy to understand. This report will also look at how the process to produce BQ and build up rate for upgrade works and its importance based on the Civil Engineering and Building Work Rate Schedule Year 2021 issued by the Ministry of Works Malaysia (KKR).

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CHAPTER 1.0

INTRODUCTION

1.1 Background of Study

The industrial training module at Universiti Teknologi Mara is an integral aspect of the university's curriculum (UITM). All students must take industrial training as one of their compulsory courses. To meet the prerequisites for graduation, each student must participate in industrial training.

The industrial training took place in a corporation or organisation that the students had chosen or was assigned to them. The basic goal of industrial training is to generate graduates who are academically or non-academically prepared and capable of doing their jobs with a high level of professionalism. Aside from that, industrial training exposes students to the real-life predicament of working-class citizens. Furthermore, industrial training aids in the development of social skills in pupils.

Upgrading work is work done to improve or change the original structure of a building to a newer one. Typically, this work is done to provide convenience to users, increase safety, beautify buildings, provide comfort, prevent any unintended incidents or injuries from occurring and preserve old buildings so that they can last longer. Moreover, this work is not work like a new construction project that needs to be done systematically according to certain methods. Often this upgrade work is done and implemented in the area or the existing building and also does not cost as high as other new construction projects.

To carry out this upgrade work, of course we need a process which to get a contractor who is really capable in implementing and completing a project with good work results according to the work items given. There are several documents or processes to get a contractor such as quotation documents, work procurement documents by direct appointment, the importance of drawing in this upgrade work, build up rate and so on. Usually, these upgrading works use the method of procurement by direct appointment and also quotation according to the department's price estimate.

In addition, these upgrade works also have some specific construction methods. To determine the construction method used during the construction site, we need to take into account the conditions around the project site area.

1.2 Objectives

During the practical training in JKR Kulai District, I was able to learn many things about how to manage a project. So, there are many objectives that I have acquired throughout this Practical Exercise and three main objectives that I will explain in more depth. Among its objectives are:

1. Work procurement documents by direct appointment.
2. Construction method.
3. Creating technical drawing.

1.3 Scope of Study

The research was done to see whether there were any opportunities for the Kulai Public Works Department (PWD) to work on-site in the construction industry. This research was carried out to acquire data for a project now underway in Kulai, Johor. maintenance work and upgrading of drainage system in Kulai Public Works Department was carried out under this project. And a new school construction project with 36 classrooms and other facilities at smk bandar putra 2, kulai, johor also carried out in this project but this project is nearing its final phase i.e., the project submission phase when the practical training started. In addition, this project has been owned by the site to be the main contractor on 3 May 2018. For the upgrading project, the study also concentrated on doing and installing reinforced concrete slabs for concrete culvert drainage, preparing drawing for new design of concrete culvert drain and also measuring works. And also, as well as the methods used during site work. Lastly, the work on the construction site does not follow the correct specifications as contained in the architect's drawings that have been made in advance.

1.3 Methods of Study

1.4.1 Interview

Interviews are a good approach to gathering knowledge quickly and concisely, especially if you are questioning people who specialize in managing important documents. Assistant engineers in the maintenance division and QS were interviewed on how to process the appointment of contractors for upgrading works. They are providing the details on what the flow to carry the project such as drawing, build up rate, quotation, bills of quantity, and notice of quotation.

1.4.2 Observation

The observation method will be used on the spot, namely at the site area of the Kulai district engineer office shop and the Ayer Bemban store. Observation will consist of an onsite inspection with a consultant and a weekly status report on the job site. With the help of a site coordinator and a consultant, this method of research will examine the condition and requirements of the drawing.

1.4.3 Site Visit

It is possible to visit and explore the construction site to learn more about the progress and method of building. Students might investigate how to efficiently prepare project papers such as quotes and other documentation. Observing the structure of the building in and of itself can give useful information.

1.4.4 Document reviews

Files on the project and pertinent subjects can be retrieved from company if any information about the project is necessary. Construction designs, firm profiles, progress reports, and images that do not belong to me are only a few examples. This strategy makes it simple to find specific information.

CHAPTER 2.0

COMPANY BACKGROUND

2.1 Introduction of Company

Initially, JKR Kulai was just a small store of JKR Johor Bahru Road Unit, governed by a Technician and a team of support staff consisting of drivers and General Workers to carry out routine maintenance work as well as all construction and rehabilitation works throughout the Kulai district, all under the supervision of the Johor Bahru District Public Works Department. 14 JKR Johor Bahru employees who formerly worked in the Kulai Zone Road Unit.

Mr. Hj. Abdul Jalil Bin Abdul Wahab, District Engineer, was assigned on June 16, 2010, which corresponds to 4 Sya'ban 1431. The Kulai District Public Works Department has officially 4orme dit. At the start of the JKR, 7 managements staff were stationed in Kulai district. Because this department is still relatively young, just a few management departments are now operational :

- a) Administration Division
- b) Road section
- c) Building section
- d) Finance division
- e) Material measurement and contract division
- f) Facilities section

Vision :

We will be a world-class service provider and a centre of excellence in asset management, project management, and engineering for the nation's creative and inventive human capital infrastructure, as well as the most cutting-edge technology.

Mission :

1. As a strategic partner, assist our customers in gaining fundamental information and delivering services.
2. Examine our procedures and systems in order to provide consistent service results.
3. Provide asset and project management services that are both effective and creative.
4. Enhance current engineering capabilities.
5. Create new human capital and skills.
6. Prioritize integrity in providing services.
7. Promoting societal harmony.
8. Keep the environment in mind when providing services.

Objective

1. Ensure that development projects and public facilities infrastructure can be completed within the stipulated time at a reasonable price, equivalent to the required quality and in line with socio-economic needs.
2. Ensure that all infrastructure facilities under the responsibility of JKR are in satisfactory condition.
3. Ensure all project implementation is in line with national and state policies.
4. Ensure the optimal quality of the environment is taken into account and can be created during the implementation of the project.

To provide infrastructure for the ministry's ministry in order for it to satisfy the nation's development policy by concentrating on:

- Completing 100 percent of projects according to the agreed-upon timetable, with 10% variations
- 100% of the project was completed on time and on budget, with a 10% fluctuation.
- Towards a product that achieves a customer satisfaction rate of more than 70%. (Based on customer satisfaction form).
- With a 5% margin, spend 100% of the project's yearly budget.
- Towards high-quality goods that result in zero client complaints, with fewer than ten types of complaints each project relating to the following features:
 - a) The product's intended functionality.
 - b) It is completely safe to use.
 - c) Facilities for maintenance.
 - d) Craftsmanship of high quality (workmanship).

2.2 Company Profile



Figure 1.0 : Kulaijaya District Public Works Department signboard (PWD)

Company name : Jabatan Kerja Raya (JKR) Kulai
Company address : Pejabat Jurutera Daerah,
Jabatan Kerja Raya Daerah Kulai,
JKR 2107, Jalan Pejabat Kerajaan,
Bukit Liki, 81000 Kulai Johor.
Tel no : 07-6632969 / 0841 / 1293
Fax no : 07-6631294

Company logo



Figure 1.1: public works department logo

Discription :

- In general, the displayed logo reflects the wide range of tasks given to the Jabatan Kerja Raya (JKR).
- Beginning from the bottom, black coloured curving lines represent pure water supply and highlight JKR's dynamic nature.
- The arch-shaped lines in concentrated black hue symbolise construction-related work and bridge maintenance, as well as a representative of the JKR organisations allocated as one of the country's leaders in engineering implementation.
- Straight black lines on a line-shaped arch represent involvement in the countrywide implementation of the road network.
- Fourteen lines on a straight line represent a vow to carry out building activities in 14 Malaysian states and federal territories.

Colour

- Yellow represents JKR's maturity as one of the oldest companies in existence, and it reflects the company's progress in attaining its goals.
- Black represents the branch's strength / unity quality, which is charged with conducting development initiatives in the JKR organisation.
- Grey represents the value of human capital in the provision of services.

Colour code

- | | | |
|-----------|--------------------------|---------|
| 1. Yellow | Autofinish Golden Yellow | ICI 456 |
| 2. Black | Autofinish Black | ICI 122 |
| 3. Grey | Autofinish Admiralty | ICI 105 |

2.3 Company Organisation Chart

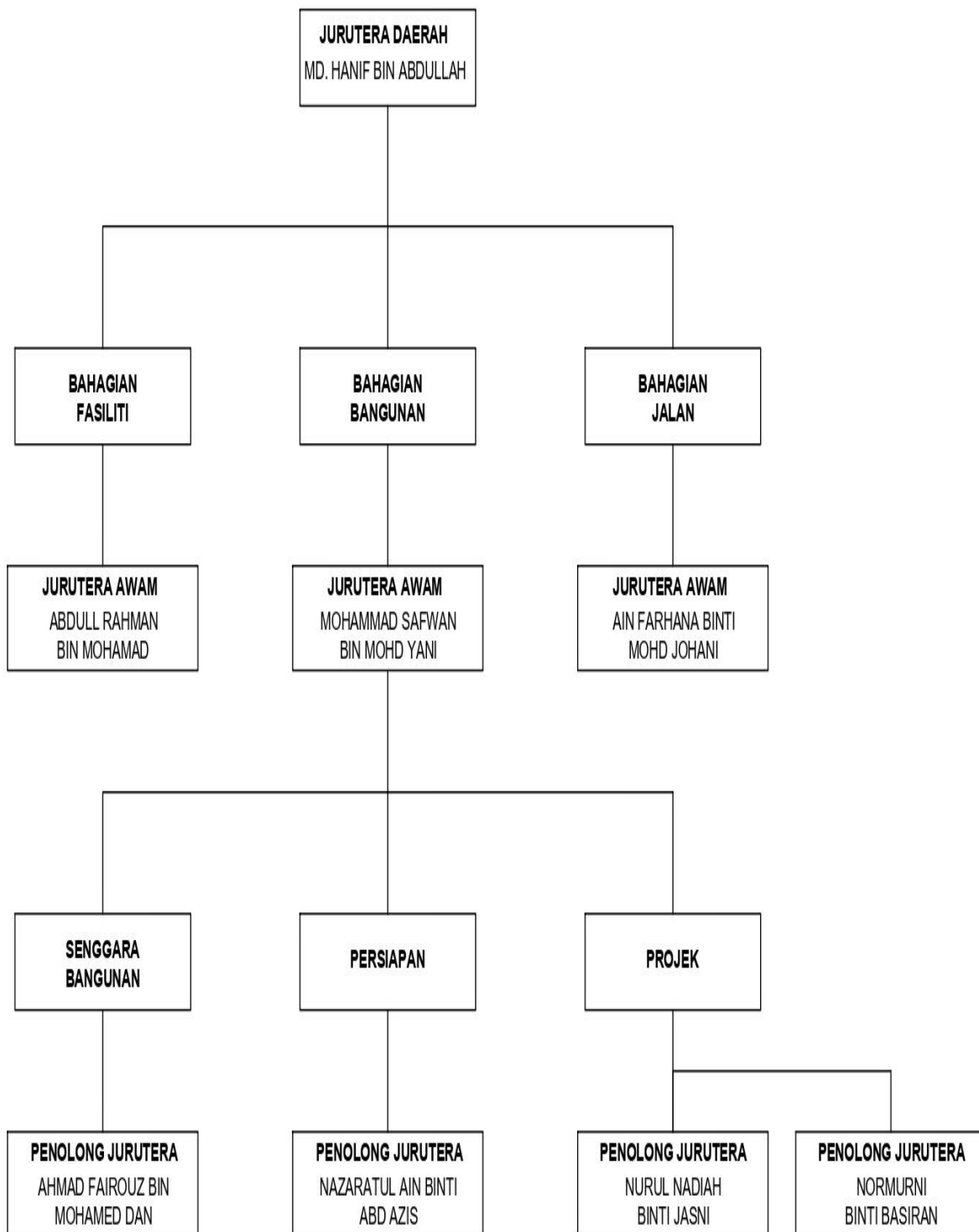


Figure 1.2 : Company Organisation Chart

2.4 List of Projects

2.4.1 Completed Projects

No.	Project Title	Project Value (RM)	Start Date	Completion Date	Project Duration	Client
1.	Minor Works for Repair and Installation of Stage, Tents Related to The Preparation Of The Official Government Ceremony, In Kulai District.	233,920.00	11.3.2018	12.12.2018	10 Months	JKR (D) Kulai
2.	Building Maintenance Works and Building Infrastructure Repair JKR (D) Kulai.	7,915.00	31.10.2021	11.12.2021	6 Weeks	JKR (D) Kulai
3.	Drainage System Maintenance Works at JKR (D) Kulai and Other Related Works.	19,997.50	9.11.2021	20.12.2021	6 Weeks	JKR (D) Kulai
4.	Construction of New Schools 36 Classrooms and Other	46,246,997.88	3.5.2018	28.9.2021	126 Weeks	Malaysia Education Ministry

	Vocational School Facilities. Bandar Putra 2, Kulai, Johor.					
5.	Building and Completing the Jamek Mosque in Kampung Murni Jaya, Kulaijaya, Johor.	1,664,074.80	5.4.2013	19.7.2013	3 Months	Johor State Development Office.

Table 1.0: List of completed projects

2.4.2 Project in Progress

No.	Project Title	Project value (RM)	Start Date	Completion Date	Project Duration	Client
1.	Kulai District Islamic Cemetery Development Project, Johor.	-	-	-	-	Kulai district kadi office, Johor
2.	Build And Complete Al-Muhajirin Mosque, Kampung Melayu, Bukit Batu, Kulai, Johor.	-	-	-	-	Johor Islamic Religious Department

Table 1.1: List of projects in progress

CHAPTER 3.0

CASE STUDY

3.1 Introduction to Case Study

The project that I am involved in is the drainage system maintenance work project at PWD Kulai district as well as other related work and this project take 6 weeks to complete start from 6/11/2021 until 14/12/2021. This project is done on due to enlarge the small street space to be large. This is because this friend is difficult for department vehicles to get in and out of due to the very narrow space.

The activities carried out and my focus on this project is how to prepare work procurement documents by direct appointment in the correct format. Also, in this project I focus on how to determine the appropriate construction method to use and to provide a drawing design that is easy to understand by the contractor.

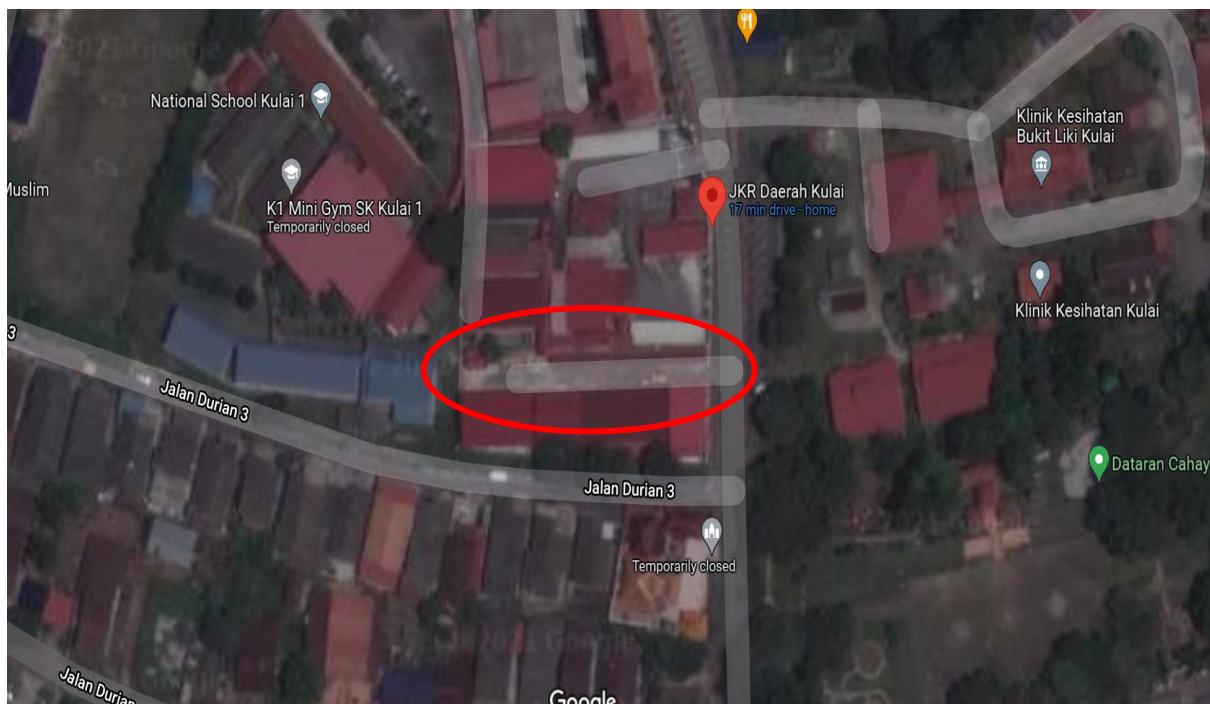


Figure 1.3: Project area

Figure 1.3 shows the area involved for drainage system maintenance works at PWD Kulai as well as other related works.



Figure 1.4: project site conditions.

The atmosphere or state of the project site region itself is shown in Figure 1.4, which is very narrow and dense. This will make it impossible for civil officials to carry out their tasks, and the roadway leading to the Kulai PWD garage, where their trucks and lorries are stored, is already narrow. This will make it impossible for civil officials, particularly drivers, to carry out their everyday tasks. As a result, certain observations and suggestions have been made in order to address this issue.

First of all, since the culvert concrete drain is higher compared to the height of the road premix, this causes the area to have a small and narrow space to pass through. Therefore, a proposal has been made by cutting the concrete culvert drain section to a certain level to obtain a relatively large road area and suitable for all vehicles belonging to PWD Kulai.

Start preliminary work, such as creating some paperwork or steps before hiring the contractor himself in terms of pricing estimates and other factors, after the solution to the problem has been identified.

3.2 work procurement documents by direct appointment.

Before appointing a contractor, the build-up rate needs to be done first to know the value of a project and this is called a departmental estimate. In build-up rate. Several aspects have been considered to know the budget of a project. Among the aspects are what equipment to use and the rental or purchase price, the type of machineries to be used in a narrow area and how much to use along with the rental price, how many laborers are needed and wages and lastly the time allotted for complete this project. Once the value of a project has been obtained, then it is easy to determine the type of procurement of work such as tenders, quotations, and appointments directly according to the value of the project. Usually, the maintenance and upgrading works use the method of procurement of work by appointment or quotation, this is because the total rate for these projects mostly amount to RM800000 and below. And only involves G1, G2, and G3 grade contractors.

Because the build-up rate made by PWD Kulai does not exceed RM20,000, the procurement technique of direct appointment was employed in this drainage system repair work project. Which PWD Kulai builds up this rate according to the PWD pricing rate schedule, which is changed every year. Whereas this pricing rate table covers all of the information or costs for each of the building materials based on their individual units. This PWD price list also includes prices for worker compensation, vehicle rent, and other costs.



Figure 1.5: civil engineering and building price schedule.

Figure 1.5 shows the top page of the PWD Kulai price rate table, which will be updated annually to reflect current material price fluctuations.

3.2 HARGA BAHAN-BAHAN BINAAN (Harga Purata Dari Kedal Bahan Binaan/Pembekal di sekitar Kuala Lumpur dan Petaling Jaya)

ITEM	NAMA BAHAN BINAAN	UNIT	HARGA
1	Batu baur (Granit)		
1.1	20mm		
1.2	25mm		
1.3	38mm		
1.4	6mm		
2	Batu baur (Limestone)		
2.1	20mm		
2.2	25mm		
2.3	38mm		
2.4	50mm		
3	Simen		
3.1	Simen (Ordinary)		
3.2	Simen (Merah)		
3.3	Simen (Putih)		
4	Ready Mix Concrete		
4.1	Grade 15		
4.2	Grade 20		
4.3	Grade 25		
5	Pasir		
6	Kepingan Jejaring (BRC)		
6.1	No A6 (A 142)		
6.2	No B6 (B 283)		
6.3	No B7 (B 385)		
6.4	No C5 (C 1896)		
6.5	No C6 (C 283)		
6.6	No A9 (A 318)		
6.7	No A10(A 393)		
7	Bar Keluli Tegangan Tinggi		
7.1	10mm diameter		
7.2	12mm diameter		
7.3	16mm diameter		
7.4	20mm diameter		
8	Bar Keluli Lembut		
8.1	10mm diameter		
8.2	12mm diameter		
8.3	16mm diameter		
8.4	20mm diameter		
8.5	25mm diameter		
9	Batu-bata		
9.1	Batu bata (Tanah liat)		
9.2	Batu bata (Simen)		
9.3	Batu bata (Fireclay)		
10	Batu Muka (Facing Brick)		
10.1	Standard		
10.2	Muka sebelah		
10.3	Muka Dua Belah		

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Figure 1.6: the contents of the PWD price table book.

Figure 1.6 above is the contents of the PWD price table document which shows the current price value for each material. Before making the build-up rate, some documents need to be made in advance such as design drawings and departure for the maintenance of these works.

Once all the necessary documents have been completed to make a departmental estimate, only then can start to offer any contractor who is interested to purchase this work procurement documents by direct appointment at PWD Kulai. Procurement of work by direct appointment is not the same as quotation or tender. This is because the procurement of direct appointment work is made by means of PWD will contact any contractor listed in the list of

direct appointment contractors of PWD Kulai by any means such as WhatsApp, email, make calls and so on. Usually for the procurement of work by direct appointment, only a G1 grade contractor is required. The PWD will set a date and time for contractors who are interested to purchase the procurement documents by direct appointment and often the PWD will offer to three contractor companies only for this project. Then the interested contractors will come to the PWD to Pick up the work documents. In this direct appointment work procurement document contains several attachments that need to be attached.

The first is the instructions that must be followed by the contractor who will carry out the task of this project.



**JABATAN KERJA RAYA
DAERAH KULAI**

**DOKUMEN PEROLEHAN KERJA SECARA
LANTIKAN TERUS**

BIL.

TAJUK :

Figure 1.7: Front page of work procurement documents by direct appointment.

On the front of the work procurement document by direct appointment, there must be the department logo, type of document, direct appointment number and project title name. In this document will also be stated about the warning about corruption offenses to the contractor himself.

Among its directives is the Integrity Pact, it states that the bidder is obliged to submit a Bidder's Declaration Letter where it is necessary not to bid or give a bribe to any other individual as a bribe to be selected in this bid. The company representative who signs this Bidder's Declaration Letter must also attach the Power of Attorney to sign on behalf of the company.

This work document does not include any notice of quotation or tender to be attached because the method of procurement of this work is by direct appointment for which no advertising notice is made. The Bidder's Declaration Letter is an affidavit that must be filled in by the representative of the contractor company concerned. The bidder must have the name of the project, the number of direct appointments, the action to be taken if the contractor gives any bribe or bribe to an individual at PWD Kulai, the signature of the contractor's company representative and the company stamp.

This Bidder's Declaration Letter informs that if any individual in the contractor company gives a bribe or bribe to any individual in PWD Kulai, some action will be taken:

- 3.2.1. Withdrawal of the contract offer for the above appointment will be made.
- 3.2.2. Termination of the contract for direct appointment will be made.
- 3.2.3. Other disciplinary actions in accordance with Government procurement rules.

And also, immediately the PWD Kulai will report to the Malaysian Anti -Corruption Commission (MACC) or at a nearby police station for further action.

SURAT AKUAN PEMBIDA
Dagi

**KERJA-KERJA PENYELENGGARAN SISTEM SALIRAN DI JKR DAERAH KULAI SERTA
LAIN-LAIN KERJA YANG BERKAITAN**

LANTIKAN TERUS DIL. JKR(D)KU(N)-01/2021(LTD)

Saya _____ (Nama Wakil Syarikat) nombor K.P.

_____ yang mewakili

(Nama Syarikat) nombor Pendaftaran _____ (PKK/CIDB)

dengan ini mengisytiharkan bahawa saya atau mana-mana individu yang mewakili syarikat ini tidak akan menawar atau memberi rasuah kepada mana-mana individu dalam **JABATAN KERJA RAYA DAERAH KULAI** atau mana-mana individu lain, sebagai sogokan untuk dipilih dalam lantikan terus seperti di atas. Bersama-sama ini dilampirkan Surat Perwakilan Kunsu bagi saya mewakili syarikat seperti tercatat di atas untuk pengisytiharan ini.

2. Sekiranya saya atau mana-mana individu yang mewakili syarikat ini didapati bersalah menawar atau memberi rasuah kepada mana-mana individu dalam **JABATAN KERJA RAYA DAERAH KULAI** atau mana-mana individu lain sebagai untuk dipilih dalam lantikan terus* seperti di atas, maka saya sebagai wakil sogokan syarikat bersetuju tindakan-tindakan berikut diambil:

- 2.1 penarikan balik tawaran kontrak bagi lantikan terus di atas, atau
- 2.2 penamatan kontrak bagi lantikan terus di atas, dan
- 2.3 lain-lain tindakan tata tertib mengikut peraluran perolehan Kerajaan.

3. Sekiranya terdapat mana-mana individu cuba meminta rasuah daripada saya atau mana-mana individu yang berkaitan dengan syarikat ini sebagai sogokan untuk dipilih dalam lantikan terus seperti di atas, maka saya berjanji akan dengan segera melaporkan perbuatan tersebut kepada pejabat Suruhanjaya Perkhidmatan Rasuah Malaysia (SPRM) atau balai polis yang berhampiran.

Yang Benar,

(Tandatangan)

Nama

No K.P.

Cop Syarikat

Figure 1.8: Example of Bidder's Declaration Letter.

Figure 1.7 above is an example of a Bidder's Declaration Letter used by PWD until now to deal with other contractors. With this Bidder's Declaration Letter, all matters involving the contractor will be guaranteed.

Then the PWD Kulai will attach a Bills of Quantity (BQ) document in which the contractor will fill in the price or price value for certain works. A quantity bill (sometimes

known as a 'BoQ' or 'BQ') is a document generated by a cost consultant (usually a materials surveyor) that specifies a project -specific measurable quantity for a work item defined by design drawings and specifications. In the paper.

Numbers, length, area, volume, weight, and time can all be used to measure quantities. A complete design and specifications must be prepared before a quantity bill can be prepared. To establish a price for completing the work, the tenderer is given a quantity bill. The quantity bill aids contractors in determining construction costs for their tenders, and because it ensures that all contractors establish the same quantity price (rather than deriving the amount from the designs and specifications), it also ensures that a project is priced fairly and accurately. To prepare BQ, BQ has two different parts. The first section states the sum of each item of the work. This is more of a summary and total price of the project while in the second part, states the detailed price for each work in an item. It states in detail the total amount obtained.

LAMPIRAN A

KERJA-KERJA PENYELENGARAAN SISTEM SALIRAN DI JKR DAERAH KULAI SERTA LAIN-LAIN KERJA YANG BERKAITAN

RINGKASAN LANTIKAN TERUS KERJA

Bil.	Hurulan Kerja	Muka Surat	Jumlah (RM)
1	KEHENDAK PERMULAAN DAN SYARAT-SYARAT AM LANTIKAN TERUS	MS1	1,500.00
2	KERJA-KERJA SALIRAN	MS2	7,500.00
3	KERJA-KERJA KONKRIT PENUTUP LONGKANG	MS3	10,947.50
Jumlah dibawa ke Borang Sebut Harga			19,947.50

Catatan

- Dokumen Lantikan Terus adalah dikira sebagai saling jelas menjelas antara satu sama lain. Kontraktor hendaklah mengadakan segala yang perlu untuk melaksanakan kerja dengan sewajarnya sehinggalah siap mengikut tujuan dan maksud sebenar. Dokumen Lantikan Terus pada keseluruhannya sama ada atau tidak tujuan dan maksud itu ada diunjuk atau dperhatikan secara khusus dengan syarat bahawa tujuan dan maksud itu boleh difahamkan dengan munasabahny dari Dokumen Lantikan Terus itu.
- Jika ada butiran yang dkehendaki dalam spesifikasi dan skop kerja tidak termasuk di dalam Ringkasan Lantikan Terus, harga butiran tersebut hendaklah dimasukkan ke dalam salah satu butiran dalam Ringkasan Lantikan Terus.

TANAH SELATAN ENTERPRISE
(MOTS1373 U)

Lot 1030 A, Kg. Melayu Baki Baru,
8100 Kulai, Johor.

Tandatangan dan Cop Kontraktor

Nama: **MHAH HALLILY BIN HAT YUSOF**
 Atas Nama: **MAGGUEET**
 Alamat: **Lot 1030-A, Kg. MELAYU**
BUKIT MELAYU, 81000 KULAI,
 JOHOR

Tarih: **27/10/2021**

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Figure 1.9: Works description section

KERAJAAN NEGERI JOHOR
JABATAN KERJA RAYA DAERAH KULAI
RINGKASAN LANTIKAN TERUS : JKR(D)KU(N)-01/2021(LTB)

KERJA-KERJA PENYELENGGARAAN SISTEM SALIRAN DI JKR DAERAH KULAI SERTA LAIN-LAIN
KERJA YANG BERKAITAN

NOTA :

Sebarang butiran yang tidak dihangkan adalah dianggap telah dimasukkan di dalam harga butiran-butiran lain. Penyebutbarga adalah dianggap telah melawat tapak bina dan membaca syarat-syarat kontrak bersama-sama dengan pelan-pelan spesifikasi untuk memastikan sendiri liputan kerja yang terlibat sebelum menghargakan sebut harga kerana sebarang tuntutan bayaran tambahan berhubung dengan perkara di atas tidak dipertimbangkan.

BIL	KETERANGAN KERJA	UNIT	KUANTITI	KADAR (RM)	JUMLAH (RM)
A	KEHENDAK PERMULAAN DAN SYARAT-SYARAT AM LANTIKAN TERUS				
1	Menyediakan segala polisi Insurans Kerja dan polisi Insurans Liabiliti Awam	Pukul	Pukul	-	
2	Menyediakan Laporan Kemajuan Kerja dan Gambar menggunakan kamera digital 3 set dan satu set dalam bentuk soft copy. Gambar diambil sebelum, semasa dan selepas siap.	Pukul	Pukul	-	
3	Membekal dan menyediakan papan tanda untuk tujuan Petan Pengurusan Trafik (TMP) sebagaimana arahan Pegawai Penguasa dan pelan lukisan Standard Temporary Signs -				
	i) Papan tanda T.1 'Advance Warning Sign'	Nos	1		
	ii) Papan tanda T.2 'Road Works Sign'	Nos	1		
Jumlah Dibawa Ke Ringkasan Bil					

M/S 1

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Figure 1.10: Work description for item A

RINGKASAN LANTIKAN TERUS : JKR(D)KU(N)-01/2021(LTB)

KERJA-KERJA PENYELENGGARAAN SISTEM SALIRAN DI JKR DAERAH KULAI SERTA LAIN-LAIN
KERJA YANG BERKAITAN

BIL	KETERANGAN KERJA	UNIT	KUANTITI	KADAR (RM)	JUMLAH (RM)
B	KERJA-KERJA SALIRAN				
1	Kerja-kerja membuka railing besi dan membuka penutup longkang konkrit termasuk membawa keluar dari tapak bina sebagaimana arahan Pegawai Inden.	SUM	-	-	
2	Kerja-kerja memotong, memecah sebahagian struktur longkang konkrit dan tangga sehingga ke aras tertentu, termasuk membawa keluar sisa buangan dari tapak bina, sebagaimana arahan Pegawai Inden.	m3	6		
3	Kerja-kerja membaiki saluran air keluar dari permukaan atas termasuk kerja pecah dan sambung semula, sebagaimana arahan Pegawai Inden.	SUM	-	-	
4	Kerja-kerja pecah anak tangga sedia ada dan bina semula dengan menggunakan batu bata pada ketinggian tidak lebih 300mm, sebagaimana arahan Pegawai Inden.	m	1		
5	Kerja-kerja mengorek tanah dan membuang keluar segala kekotoran di dalam longkang serta kawasan pembinaan semasa dan selepas pembinaan, sebagaimana arahan Pegawai Inden.	m ³	50		
Jumlah Dibawa Ke Ringkasan Bil					

M/S 2

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Figure 1.11: Work description for item B

BIL	KETERANGAN KERJA	UNIT	KUANTITI	KADAR (RM)	JUMLAH (RM)
C	KERJA-KERJA KONKRIT PENUTUP				
1	Kerja-kerja konkrit penutup longkang 100mm tebal yang diperkuatkan dengan BRC A10	m ³	63		
2	Kerja-kerja membina acuan konkrit pada permukaan melintang sebagaimana arahan Pegawai Inden.	m ²	64		
Jumlah Dibawa Ke Ringkasan Bil					

M/S 3

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Figure 1.12: Work description for item C

All of these BQ attachments need to be included in the working document and will be filled in by the contract that purchased these working documents according to their respective prices. In addition to the BQ, the contractor needs to attach some certificates along with this working document to complete the requirements for PWD Kulai to accept the contractor to carry out the projects at PWD Kulai. Among the certificates and registered documents required are Johor contractor certificate under Johor Center for Construction Development (JCCD), statement of account, registered certificate from Construction Industry Development Board (CIDB), Companies Commission of Malaysia (CCM), Native Status Certificate (STB) and so on. When the work documents have been sold to the contractor and have been filled in the BQ space, PWD will select the BQ-BQ price that is close to the department's estimate and also review the documents or certificates provided by the contractor to increase confidence for the selected contractor. From this BQ will also the contractor and PWD Kulai will go down to the project site in case there is a need for changes to the BQ item on the condition of the site itself.

3.3 Construction Method

After the contractor has been selected and has owned the site on 6/11/2021, the PWD will monitor the work done by the contractor. Monitoring must be done so that the contractor performs the task in compliance with all the job descriptions available in the BQ so as to ensure that no additional costs are made. Furthermore, with this monitoring, I was able to learn about the construction method used during the maintenance period of the drainage system at PWD Kulai.

3.3.1 Works to open the iron railing.



Figure 1.13: Picture before the iron railing was opened.



Figure 1.14: Picture after the iron railing was opened

Workers opened the iron railing and cut the screws planted in the concrete gutter cover using a grinder.

3.3.2 Works to open the concrete drainage culvert cover.



Figure 1.15: Lifting concrete drainage cover

The picture above shows a 1 -meter concrete culvert drainage cover opened and lifted using an iron chain tied to the drain cover and connected to a backhoe for lifting.



Figure 1.16: Roll-on/roll-off container



Figure 1.17: lorry carried out the container

When the concrete cover is lifted using a backhoe, the cover will be placed on a roll-on/roll-off (Roro) container and will be dumped to a suitable place and in accordance with the job description available in the BQ.

3.3.3 Works to cut part of the drain culvert concrete.



Figure 1.18: Breaking part of the culvert concrete drainage

To break up most of the culvert box section, a backhoe was used to speed up the time for the concrete breaking work according to the work items in the BQ.



Figure 1.19: Results after the culvert box is broken using a backhoe

The black line found on the concrete wall is the height of the new drain depth. The black line was made using a rope dipped in black ink and stamped on the surface of the concrete. In the presence of that black line, this indicates a benchmark for the concrete cutting work to be made. After the backhoe has broken a large amount of concrete, the work of cutting the concrete in fine and detail will be done. This is because to avoid any concrete that does not want to be broken also breaks as a result of not doing the work in detail.



Figure 1.20: Workers holding a hammer machine breaker

To start the fine work of breaking concrete to the level that has been marked, equipment such as breaker machines are used to break concrete in small quantities is very suitable for use.



Figure 1.21: Grinder machine



Figure 1.22: Steel reinforcement after cutting

To cut the steel reinforcement in the concrete culvert, they use a grinder machine (figure 1.21) to cut the steel reinforcement. After that, the culvert box with a certain height (figure 1.22) is ready for the work of cutting the culvert box.

3.3.4 Concrete works



Figure 1.23: concrete mix above culvert drain box



Figure 1.24: Formwork for grating installation

The contractor will prepare and make a concrete formwork made of wood on the culvert box that has been cut. The formwork is 100mm high according to the thickness of the concrete. Before pouring concrete, Reinforcing Fabric of Steel (BRC) grade no. A10 size 100mm width x 400mm length is placed in the formwork and then poured concrete mix grade 25 (figure 1.23). Finally, and do not

pour concrete on the space to be placed drain grating (figure1.24). After that wait for 14 days for the curing process for the concrete to become really strong.



Figure 1.25: Ready -made concrete stairs



Figure 1.26: Drain grating to close holes in concrete



Figure 1.27: Areas that have been concreted

3.4 Creating technical drawing

Design drawing is very important in starting a project. Such as the project to maintain this drainage system, design drawings are made to complete working documents such as tenders, quotations, and even direct appointments. This is because, design drawings play an important role in producing BQ. Which BQ is a very important appendix to complete the working document. For example, this design drawing has 3 types namely 2D, 3D, and illustration. But in this drainage system project only 2d type is used. This drawing helps in making estimating through taking off and BQ or BoQ. And the drawing that I have made is of the type that is an existing drawing where this drawing is made according to the original description of the project or before the culvert box drain is maintained. The second is As-built drawing. As built is a drawing made after the maintenance work is completed and it is according to the new design of the project. All measurements will follow the measurements of the new finished design. An As-built drawing is made if there are any changes to the surface of the project site or other factors that prevent the contractor from performing the work according to the original drawings in this work document.

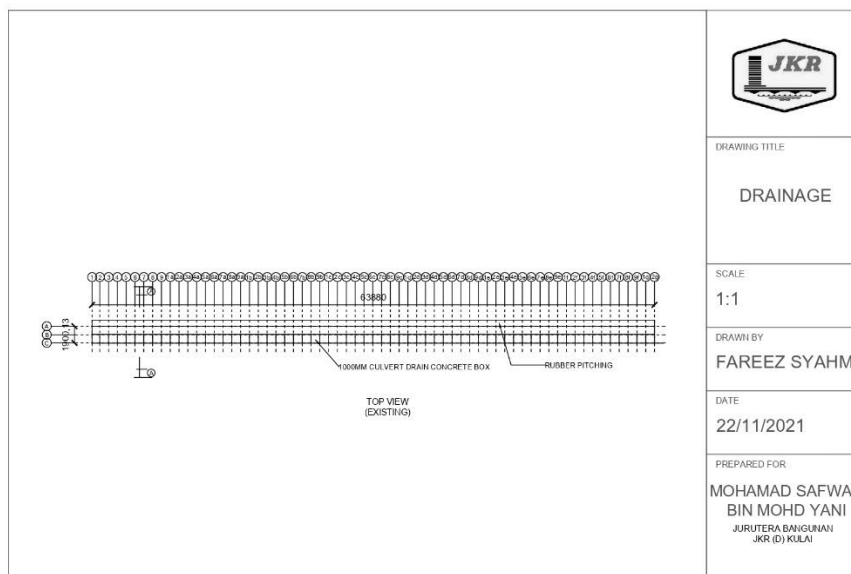


Figure 1.28: Existing top view drawing

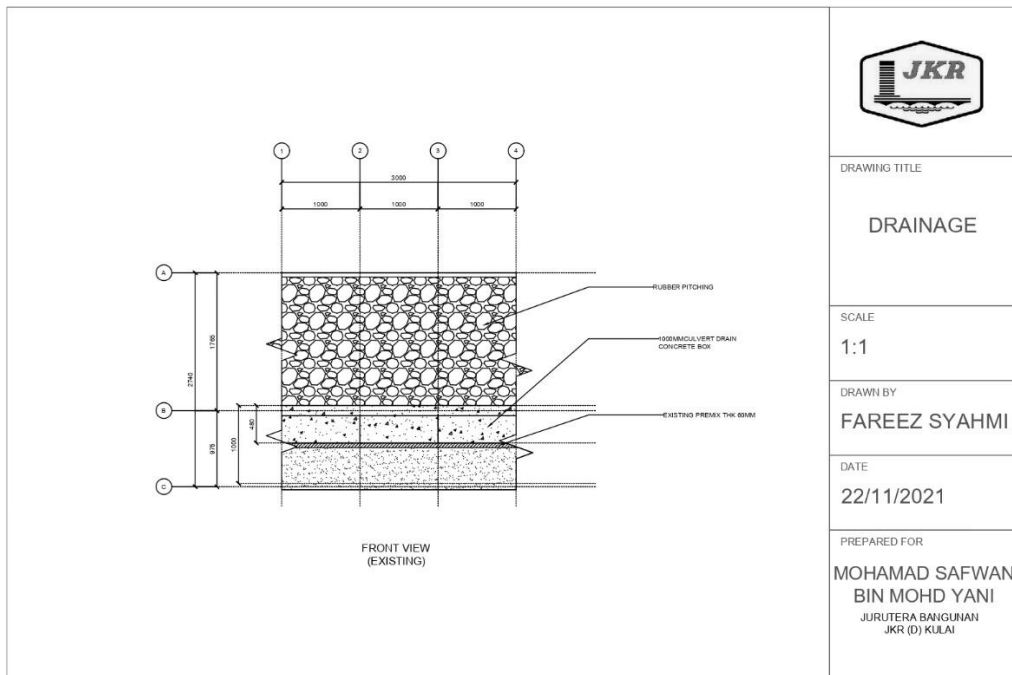


Figure 1.29: Existing front view drawing

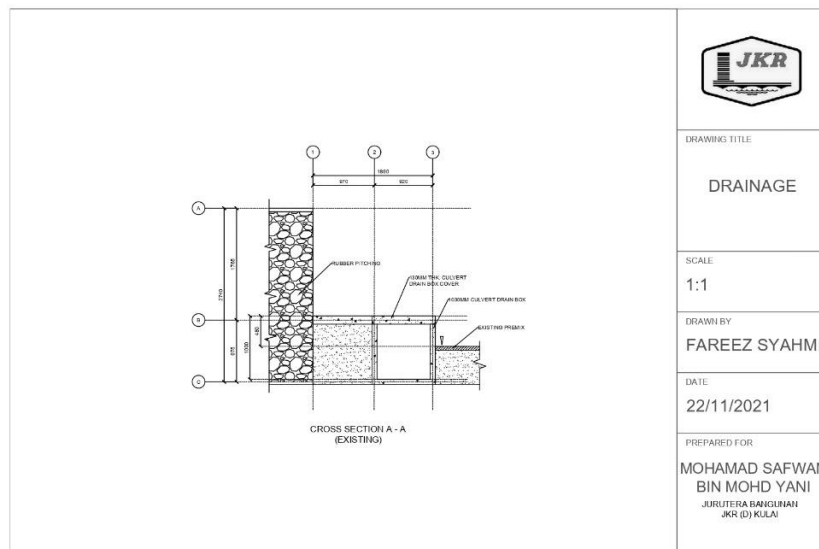


Figure 1.30: Existing cross section drawing

the three Figures above are an existing drawing design. I made this drawing according to the actual measurements of the culvert box drain before it was maintained.

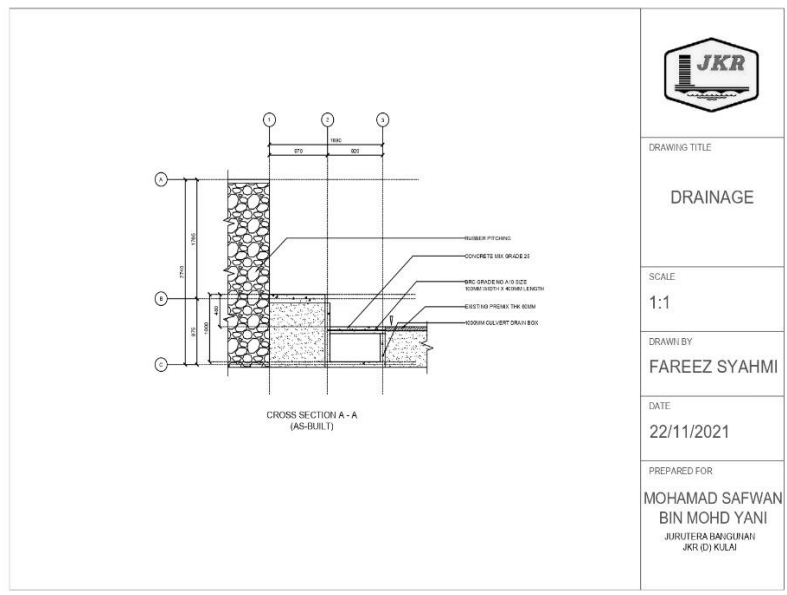
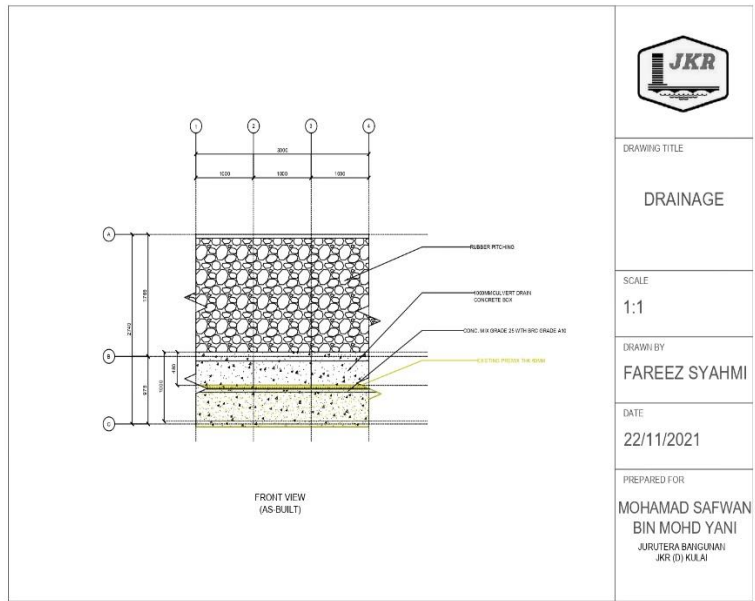


Figure 1.31: As build drawing

The drawing above is an example for an As build drawing that needs to be made after the maintenance work is completed with all the correct measurements and estimating.

CHAPTER 4.0

CONCLUSION

To prepare working documents by direct appointment need to have some criteria such as there must be a front page, direct appointment number, Bidder's Declaration Letter, and also BoQ or BQ. In addition, be able to know how to handle and decide on construction methods in narrow and congested areas. Next, the design drawings made should be clear and easy to understand by the contractor and ensure that each material should be described in detail so as to avoid misunderstanding of opinion between the manufacturer of the work and the executor of the work.

During this practical training I found out about the preparation of important documents such as BQ, what is provisional sum and prime cost sum. And also, I learned the details of drawing. While on site, I experience a hard time when the wires for the streetlights broke as a result of the work of lifting the drain cover and the contractor told me that they were not responsible for the damage as this work was not in the BQ. So, to solve this problem, I have to make a complaint to the electrical division which this division manages the electrical technical work and also a complaint to the district engineer. Once the project can be run as usual.

The most important thing I learned while working is that we need to know where we stand as employees. For example, we are appointed to work on what task. This is so that we do not fall victim to the situation for a dispute between the contractor and the manufacturer of the work. In addition, I learned to be more careful to provide information to outsiders so that there is no corruption or misunderstanding between the two parties.

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