



**CONSULTANCY AND SYSTEM
DEVELOPMENT SERVICES FOR:
ROAD ASSET MANAGEMENT SYSTEM (RAMS)
FOR PERFORMANCE-BASED CONTRACTS
FOR THE LONG TERM MANAGEMENT AND
MAINTENANCE OF STATE ROADS
[JALANRAYA NEGERI(JRN)] IN SARAWAK –
PACKAGE 4 (MIRI DIVISION)**

**USER REQUIREMENT SPECIFICATION (URS)
– Emergency Response Team**

Oct 2020

Version 2.2

Endaya Construction Sdn Bhd
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**CONSULTANCY AND SYSTEM
DEVELOPMENT SERVICES FOR
ENDAYA CONSTRUCTION SDN BHD**


**ROAD ASSET MANAGEMENT SYSTEM (RAMS) FOR
PERFORMANCE-BASED CONTRACTS FOR THE LONG TERM
MANAGEMENT AND MAINTENANCE OF STATE ROADS
[JALANRAYA NEGERI(JRN) IN SARAWAK – PACKAGE 4 (MIRI
DIVISION)]**

Date : Oct 2020

Reference : INFRA-EPB/PIO/URS/END/2020-10

Status : Final

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1.0 INTRODUCTION

1.1 Purpose of Document

This document is intended to provide the User Requirement Specifications (URS) for the development of a Performance Based Contracts Road Assets Management System (JKRS PBC RAMS) under the pilot implementation of Performance Based Contract (PBC) for the Long Term Management and Maintenance of state road in Sarawak – Package 4 (Miri Division).

The specifications for system requirements for JKRS PBC RAMS contained herein is provided in accordance with the guidelines of the RMMS Framework that has been developed by JKRS as part of the deliverable for the PBC system deliverable.

The document represents a documentation of user specified requirements and functionalities that will need to be considered and implemented in JKRS PBC RAMS (hereinafter referred to as “RAMS”) which will effectively support the asset management and maintenance processes in the execution of the PBC.

The intended users of this document are:

- a. Endaya PBC project personnel - in defining the system requirements and functionalities that will be developed and delivered for use under RAMS. This includes relevant project personnel at Endaya and JKRS who would eventually be part of the end user of the RAMS.
- b. Endaya RAMS Project Management Office – as a reference guide in the development of RAMS.
- c. Endaya stakeholders, JKRS stakeholders, Engineering Consultant Personnel and subcontractor project personnel – in ensuring systems operations and data interfacing requirements with Road Asset Inventory and the Governance Performance Indicators.
- d. Other Service Providers – as future implementers of the Endaya RAMS as part of the requirements towards the adoption of a standardised PBC delivery monitoring and reporting for the overall JKRS state road network.

This document serves to establish the user requirements and functional requirements of Endaya RAMS in accordance to the recommended functionalities contained herein.

This document defines the high level requirements of Endaya for this project. It will be used as the basis for the following activities:

- Creating solution designs
- Developing test plans, test scripts, and test cases
- Determining project completion
- Assessing project success

1.2 Background

In accordance to the PBC contract requirements, Endaya has embarked to develop and implement the RAMS system within the Performance Based Contract (PBC) framework for the maintenance of State Roads within the Miri Division in Sarawak. The implementation of RAMS will facilitate the objective of attaining higher returns in view of the increasing annual escalation of road maintenance cost as compare to the conventional contract.

The state road network involved in Miri Division in East Malaysia has been identified to consist of the following Road Maintenance Units (RMU) and corresponding sections:

RMU Miri: -

- i) Miri: approximately 40 number of roads totalling to 123.81 km
- ii) Bakong: approximately 10 number of roads totalling to 109.65 km
- iii) Bekenu: approximately 26 number of roads totalling to 151.71 km
- iv) Marudi: approximately 12 number of roads totalling to 106.76 km
- v) Bario and Mulu: approximately 7 number of roads totalling to 18.38 km

RMU Batu Niah: -

- i) Batu Niah: approximately 22 number of roads totalling to 141.02 km

Endaya has appointed Edgenta PROPEL for its services to develop the JKRS RAMS and to leverage on its existing RAMS platform as a reference. The scope of work includes the following key deliverables:

- a. JKRS RAMS System Architecture – for the implementation of industry's best asset management system and processes. This will constitute the basis of system implementation for JKRS RAMS.
- b. JKRS Performance Based Contract Form – a contract form with performance measures and levels of service as the yardstick for determining of economic remuneration.
- c. A specification for JKRS RAMS – a guideline on the functionalities that would be involved in the carrying out of a JKRS RAMS that support the Asset Management processes as defined in the RMMS PBC document.
- d. Performance Based Contract Road Asset Management System (RAMS) – a computerized web-based system that enables the monitoring of PBC Service Provider (SP) performances by JKRS. It also serves as the central depository of JKRS PBC related information that is essential in the administration of a JKRS PBC contract. Edgenta PROPEL is responsible to conduct the user requirement study, system design, evaluation, testing and implementation of the RAMS.

1.3 Definitions, Acronyms and Abbreviations

AJAX	Asynchronous JavaScript and XML. A set of web development techniques using many web technologies on the client-side to create asynchronous Web applications.
RMMS	Road Management and Maintenance System, as defined by the JKRS
GIS	Geographic Information System, a mapping system that is linked to a relational database. A general term which may refers to software that is produced by Environmental Systems Research Institute (ESRI) or Google based mapping system
HSE	Health, Safety and Environment
JKRS	Jabatan Kerja Raya, Sarawak
HTML	Hyper Text Markup Language
EC	Engineering Consultant
KPI	Key Performance Index
LOS	Levels of Service, a specified minimum level of performance to be achieved by the Concessionaire in conforming to the requirements of the JKRS PBC
LRS	Linear Referencing System; A computerized location referencing modelling technique that uses route identification and change (distance) location of reference points as the mode of referencing the location of linear assets
MPM	Management Performance Measure
OPM	Operation Performance Measure
PBC	Performance Based Contract, a contract form whereby the result or output of the contractor is measured by the defined outcome of the deliverables, rather than by measurement of the input, as in conventional contract
RAMS	Performance Based Contract Road Asset Management System, to be developed by Edgenta PROPEL
SDE	Spatial Database Engine to store spatial data in an ESRI ArcGIS Server platform
SECTION / DISTRICT	Approximate areas of maintenance within a Road Maintenance Unit (RMU)
SP	Performance Based Contract Service Provider
WAN	Wide Area Network, networking beyond the local area network, involving internet communications

1.4 Document Reference List

Reference Document	Document File Name	Revision Date
JKRS PBC Draft Contract Document	PBC JKRS Draft Contract Document	Jan 2020
SOP Process Flow	<ol style="list-style-type: none"> 1) Routine Maintenance Management Activities – Process Flow <ol style="list-style-type: none"> i) Monthly Routine Maintenance program preparation process flow ii) Cyclic / routine patrol inspection process flow iii) Periodic inspection process flow 2) Annual Pavement Planned Periodic Maintenance Works process flow <ol style="list-style-type: none"> i) Pavement planned periodic maintenance works program preparation process flow ii) Pavement planned periodic maintenance works implementation process flow (for reconstruction maintenance works, IW) iii) Pavement planned periodic maintenance works implementation process flow (for rehabilitation, resurfacing & preservation works) 3) Non- Pavement Planned Periodic Maintenance Works <ol style="list-style-type: none"> i) Non pavement annual planned periodic maintenance works programme preparation process flow ii) Non pavement rehabilitation work requires appointment of external consultant process flow iii) Non pavement rehabilitation (including pavement less than 100 continuous lane meters length) process flow 4) Additional Works/Emergency Works – 1 process flow <ol style="list-style-type: none"> i) Additional works & emergency works implementation process flow 5) PBC inspection flow chart 	

CONTROLLED ASSET LISTING	<u>ASSET LISTING AND STRUCTURE</u>	
	1. Carriageway	i. Asphalt (Premix) ii. Surface Dressed iii. Gravel iv. Earth v. Concrete vi. Sand
	2. Shoulder	i. Asphalt ii. Concrete iii. Earth iv. Gravel v. Footpath/Kerb
	3. Drain	i. Earth ii. Block Stone iii. Concrete
	4. Ditches	i. Gravel/Sand/Earth
	5. Edge Line Marking	i. Paint ii. Thermoplastic
	6. Centre Line Marking	i. Paint ii. Thermoplastic
	7. Signs	i. Warning ii. Gantry Sign iii. Guide Sign iv. Delineator
	8. Culvert	i. Concrete Pipe ii. Concrete Box iii. Metal iv. HDPE v. Others
	9. Bridge	i. Concrete - Concrete ii. Concrete-Steel iii. Steel-Timber iv. Steel- Steel v. Timber-Timber vi. Timber-Steel vii. Masonry viii. Elevated Viaduct ix. Long Bridge (>100m)
	10. Retaining Wall	i. Reinforced Concrete ii. Steel/Metal iii. Masonry/Gabion iv. Precast Panel v. Timber vi. Soil Nail vii. Others

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NOTIFICATION OF DEFECT & PERIODIC MAINTENANCE	11. Guardrail	<div><div>i. Steel</div><div>ii. Wire</div><div>iii. Pedestrian Railing</div><div>iv. Parapet Wall</div><div>v. New Jersey Barrier</div><div>vi. Bollard</div><div>vii. Flexible Post</div><div>viii. Others</div></div>
	12. Road Studs	<div><div>i. Left</div><div>ii. Centre</div><div>iii. Right</div></div>
	<div>Notification of Defect Form and Sample Periodic Maintenance (Monthly, Weekly, Daily Programs)</div> <div>As per submission form to be established:</div> <div><div>- Detail Inventory</div><div>- Monthly Program</div><div>- Weekly Program</div><div>- Daily Response Log</div><div>- NOD blank format</div></div>	

2.0 SYSTEM OVERVIEW

The PBC Road Assets Management System (RAMS) can be set up as either a secured Cloud based system or a secured server based system. The system will then also have a cloud based integrated application which has multi-tasking operation and integration of the cloud Web Services on a centralized server. The system will serve as an on-line performance reporting tool for KPIs as defined under the RMMS Framework to be developed under the current project. RAMS allows users to monitor the performance of the Service Provider under the Performance Based Contract (PBC) implementation.

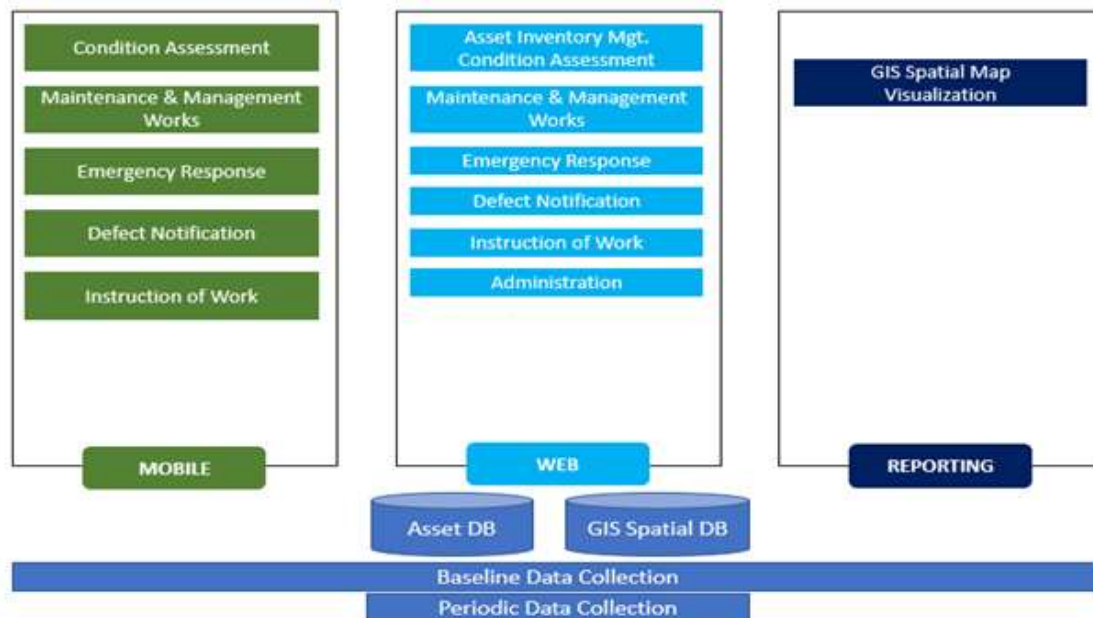


Figure 1 - System Process Diagram for phase 1

RAMS will provide the following key outputs to facilitate Endaya PBC contracts:

- KPI Monitoring Dashboard - An on-line and real-time computed KPI monitoring dashboard for performance achievement monitoring of key performance areas as defined in the Asset Management Framework to be developed under this project.
- GIS based visualization interface – A mapping system to spatially display locations of inventory, asset conditions and color coded representations of performance KPIs on map.
- KPI Performance Reports – Documents such as KPI achievement reports can be generated and displayed on a web interface as well as in reported format.

A central RAMS database will be established as the storage and source of asset inventory, condition and concessionaires' operations and managing performance data. This database will be populated with data derived from mandatory periodic submission of data updates from the SP.

Secondary data will be input into the system to enable the computation of performance indices by Endaya. These include required Level of Service and KPI (as prescribed under PBC), compliance audit data (as collected by Endaya site inspectors) and other obligatory SP requirements such as submission dates of reports, response time for repairs.

The RAMS is also integrated with GIS features system consisting of various modules and mandatory components, each catering to the collection and management of a particular type of information.

3.0 Emergency Response Team (ERT) Module

3.1 General Scope of Work

- 1) To create a ERT module to record Work Activities carried out by the Emergency Response Team.

Fields available for ERT module are:-

- Section*
 - Main Task (dropdown - maintainable) *
 - Sub Task Level 1 (dropdown - maintainable) *
 - Task Description
 - Chainage KM From
 - Chainage KM To
 - Response Date / Time
 - Incident Date / Time
 - Finished Date / Time
 - Site Reference (LHS or RHS at Form D)
 - Is the work delayed? (checkbox) at the Form D work status
 - Task Photos (multiple photo upload, WAR))
 - Signature by user (Not available for E-Signature) – Multiple
 - Accident and U See U Act Form module (Upload)
- 2) Allow multiple users to fill name on the sign on task
 - 3) To digitize relevant form(s).

No selection of Asset ID is needed.

ERT record will not tie to any Asset ID or Asset Grouping. ERT need to manually select a Section upon creating or log an issue into ERT module

Note: * indicate the field is mandatory.

In Tablet:-

Able to work offline.

ERT will be available as a separate module into RAMS App, and to limit by access right controlled by RAMS System Admin.

System to capture geo-location.

User can create ERT records and upload. I

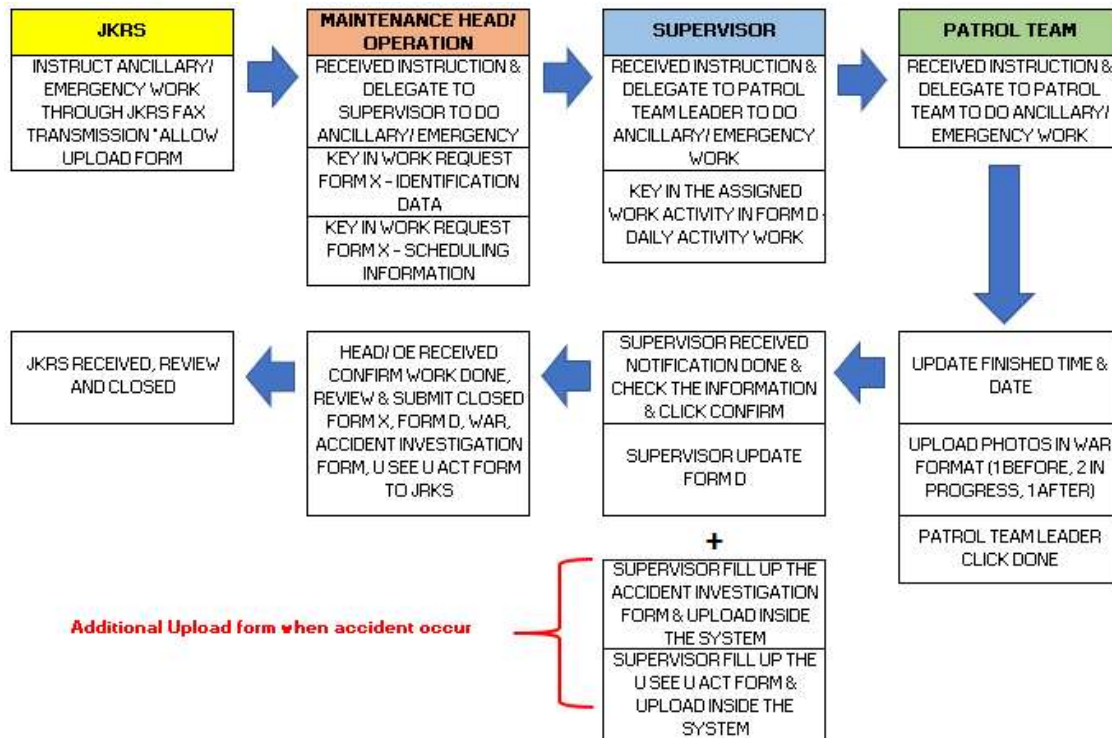
However, some master data such as Section list and the Sub Task categorization info is stored in RAMS server, user will need to Refresh these data in tablet from time to time.

There will be a “Refresh Master Data” button available for users to click and update master data. This action required Internet.

User accessibility control by access rights (New setting available on RAMS). When creating a new ERT record, users will need fill in all mandatory fields (as describe above). User will be able to get the following outputs: Work Activity Report (WAR), Form X, and Form D. For other forms such as Accident Form and U See U Act Form, user will be able to download a blank copy. User will then fill in manually and then upload into the system. System will auto generate the ERT Number when uploading the issue onto web.

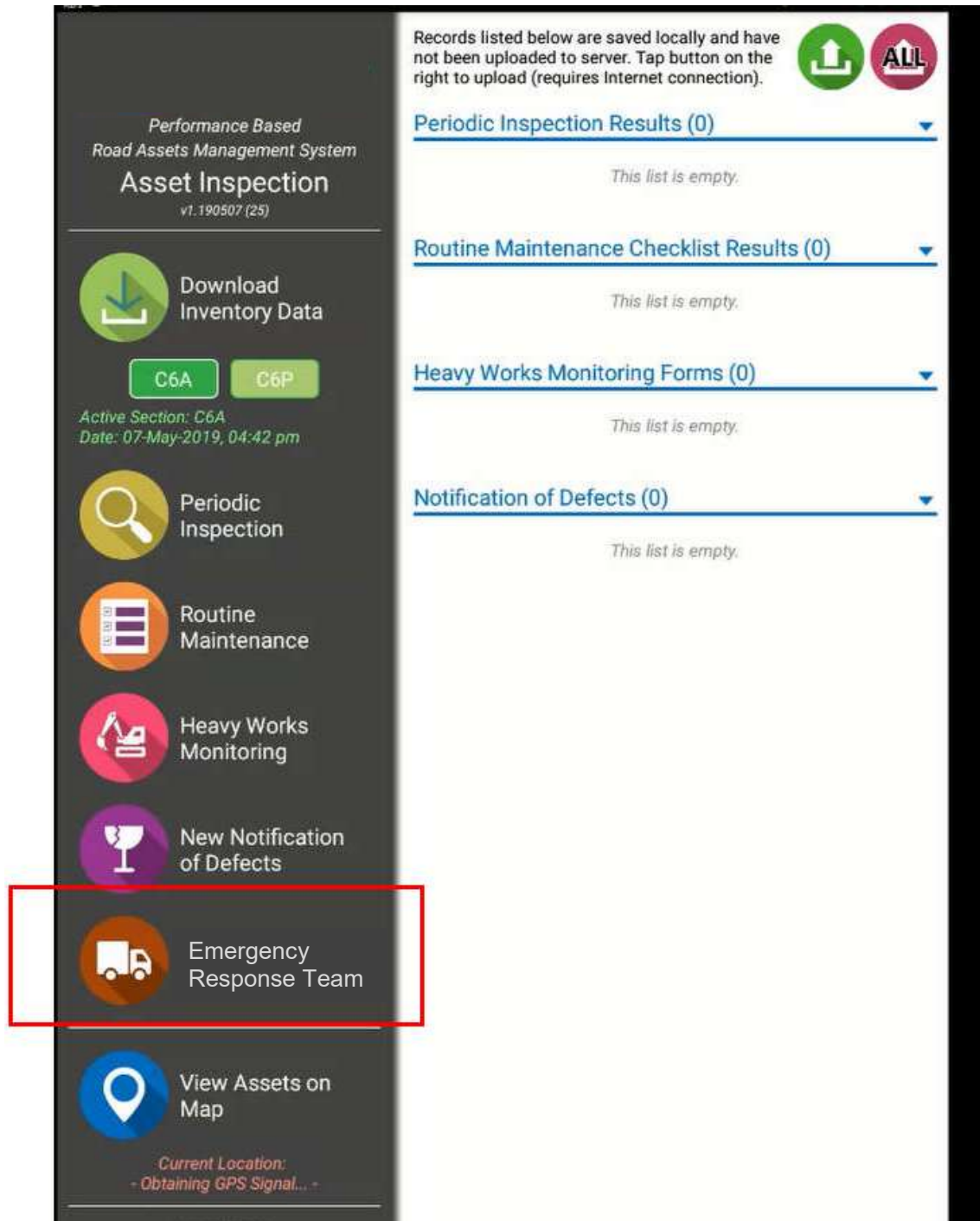
3.2 ERT Work Flow

During the incident for an ERT case, JKR Sarawak Personal or S.O. will notify us through Fax Transmission. The work flow from the reported case will then be processed and delegate as per work flow below:



3.4 Sample Screens – Tablet

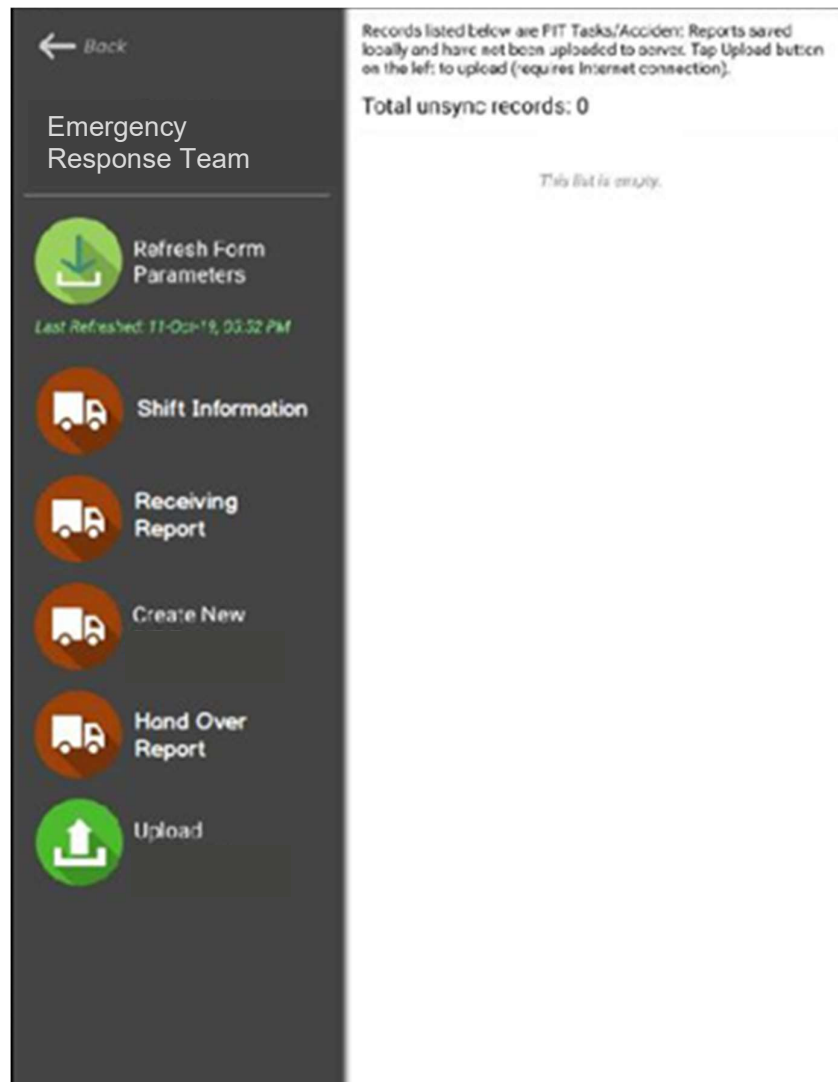
3.4.1 Landing Screen



New module icon – Emergency Response Team (ERT) added into the tablet application. To access, click on the Icon.

Reminder:-

If users need to use just the ERT module, he/she does not need to click on the Download Inventory Data.



This is the landing screen when entering into the ERT module.

3.4.2 Refresh Form Parameters

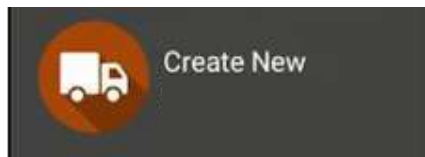


Users will need to click on the Refresh Form Parameters button for first time usage. This action will trigger the app to start refresh and download ALL necessary data and information for ERT module usage.

This action required Internet Connection

Even though users do not need to refresh the parameters everytime, it is still advisable to users to click on this button and refresh the form parameters on weekly basis.

3.4.3 Create New ERT Task / Log



To start creating a new ERT task, click on the “Create New ERT Task” icon

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The Groups that will be available are **General (Form D)**, **Accident** and **U See U Act** as per following **Sample**.

The screenshot displays a mobile application interface for the 'Task' form. On the left is a dark sidebar with navigation options: 'Record details', 'Form D' (selected), 'Accident', 'U See U Act', and 'Picture'. The top of the main area has 'Back' and 'Save' buttons. The 'Task' title is at the top right. The 'General' section is expanded, showing fields for 'Section *', 'Main Task *', 'Sub Task Level 1 *', 'Task Description', 'Feature *', 'Lane', 'KM From', 'KM To', 'Response Date/Time' (with a checkbox for 'Select a date and time'), 'Finished Date/Time' (with a checkbox for 'Select a date and time'), and 'Is the work delayed?' (with radio buttons for 'Yes' and 'No'). At the bottom are expandable sections for 'Task Photos' and 'Signatures'.

Task

General

Section *

- Please Select -

Main Task *

- Please Select -

Sub Task Level 1 *

- Please Select -

Task Description

Feature *

- Please Select -

Lane

- Please Select -

KM From

KM To

Response Date/Time

☐ Select a date and time

Finished Date/Time

☐ Select a date and time

Is the work delayed?

☐ Yes ☐ No

Task Photos

Signatures

ERT Task > General Form D

The screenshot displays the 'Task' interface. On the left, a dark sidebar contains a 'Record details' section with four items: 'Form D', 'Accident' (which is highlighted with a green bar), 'U See U Act', and 'Picture'. The main content area is titled 'Task' and features a 'General' tab. Below the tab, there are two distinct sections. The first section, 'Accident Investigation Form', is enclosed in a purple border and includes 'Download' and 'Upload' buttons. The second section, 'U See U Act Form', is also enclosed in a purple border and includes 'Download' and 'Upload' buttons.

Accident and U See U Act sub section screen

In the event where the ERT case involve accident or any related, the patrol team will be able to download the Accident Incident and U See U act form if required. This later could be used by the office personal and authority in regarding reporting as well as operation asset maintenance. The sample of the Accident and Incident form are as the below, the full form can be referred in the **Appendices** of this URS Module.

Accident Investigation Form



ENDAYA CONSTRUCTION SDN. BHD. (049693-V)

ACCIDENT INVESTIGATION FORM
(NOTIFICATION OF ACCIDENT / DANGEROUS OCCURRENCE)

SECTION A - REPORTERS INFORMATION (MAKLUMAT PEMBERITAHU)

FULL NAME (NAMA PENYUJUT): _____

DATE OF REPORTING (TARIKH MEMBUAT LAPORAN): / /

COMPANY'S NAME (NAMA SYARIAH): _____

TIME OF REPORTING (MASA MEMBUAT LAPORAN): / HOURS (JAM)

SECTION B - VICTIM'S INFORMATION (MAKLUMAT MANGSA)


INJURED PERSON (S) NAME (NAMA PEKERJA YANG CEDERA):

- (i) _____ SEX: ☐ M (LELAKI) ☐ F (PEREMPUAN)
(ii) _____ SEX: ☐ M (LELAKI) ☐ F (PEREMPUAN)
(iii) _____ SEX: ☐ M (LELAKI) ☐ F (PEREMPUAN)

POSITION (PEKERJAAN)	NATIONALITY (KEWARGANEGARAAN)	EXPERIENCE (PENGALAMAN)
(i)		
(ii)		
(iii)		
(iv)		

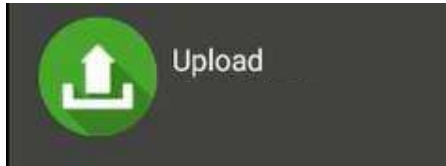
IMS/HSE/FR-37 REV1

U See U Act (Unsafe Act and Condition) Form

 <p>ENDAYA CONSTRUCTION SDN. BHD. (049693-V) UNSAFE ACT AND CONDITION FORM</p>	
Nama Pelapor * Reporting Name	<input style="width: 90%;" type="text"/>
Tempat Kejadian * Location	<input style="width: 90%;" type="text"/>
Skop Kerja * Work Scope	<input style="width: 90%;" type="text"/>
Maklumat Mengenai Information regarding	
Tanda (✓) Pada Petak Yang Berkenaan Dan Beri keterangan. Please (✓) in box if relevant and describe.	
Perbuatan tidak selamat Unsafe Act	Kedua Persekitaran tidak Selamat Unsafe Condition
Cadangan Penambahbaikan Recommendation for Improvement	
IMS/RMD/FR-3D (Rev.01)	

3.4.4 Upload ERT Task / Log

To upload all recorded ERT task, click on the Upload ERT Task button. This action requires Internet Connection.



3.4.5 Shift Information

To manage all information related to Shift, Duty Roster, Vehicle Used, Equipment used for the Emergency Response Team. Refer to section 3.7 of this document.



ERT Report

Logout

Section 1

Search FilterShift Roster

You logged in as ariff.zalhasmi

←

Mon, 02/11/2020

→

+ SHIFT INFO

No Shift Info yet today. Click to Add New Shift Info

User will be able to view shift, Duty Roster, Vehicle Used and Equipment from the web and tablet app. However, user will only be able to edit and add new shift info, duty roster and etc at the web application.

← Shift Information

Logout

Section 1 – Shift A

Date*

02/11/2020

Vehicle Plate No.

Please Select

Team Leader

Please Select

Phone No

Team Member 2

Please Select

Status

Please Select

Please Select

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← Shift Information

Logout

Team Member 3

Please Select

Please Select

Team Member 4

Please Select

Please Select

Team Member 5

Please Select

Please Select

Traffic Management Control PIC

Person in charge name

Phone No

On Call Supervisor

Please Select

Clear

Submit

3.5 Sample Screens – Web

3.5.1 ERT Module – Listing Page

ROAD ASSET MANAGEMENT AND MAINTENANCE SYSTEM

AVOWS

ERT

Home > ERT > ERT

Search..

← prev 1 2 3 4 5 6 next →

Download Add ERT

ACTION	NO.	ERT NO	SECTION	LANE	TASK	SUBTASK LEVEL 1	TASK DESCRIPTION	IS ACCIDENT	CREATED
Click Me ▶	1	ERT/1/001	Miri	Lane 1	Accident	Mandatory Exit	Accident lori terbalik	Accident	Aug-12
Click Me ▶	2	ERT/1/002	Bakong	Lane 2	Accident	Attend	Acc melibatkan 2 buah kenderaan	Accident	Aug-12

This is the listing page of the ERT Task module. Whenever ERT crews (Patrol Team) sync up their task the server, users with access rights will be able to access to their data through this module.

To perform advance search, users can key in all available filtering criteria to further drill down the display result in listing page. For example, user can search by Section, Bound, Lane, or even the Task options to perform filtering.

Take from wireframe.

3.5.2 ERT Module – Editing Page

Form X
Form D
Photo
Accident
U See U Act

ERT No.

Section*

--Please Select--

Features*

--Please Select--

Main Task*

--Please Select--

Sub Task Level 1*

--Please Select--

Chainage From

Chainage To

Lane

Chainage From

Chainage To

--Please Select--

Response Date

Response Time

dd/mm/yyyy

--:-- --

Finished Date

Finished Time

dd/mm/yyyy

--:-- --

The editing page of ERT module will be as per screen above. All mandatory fields were highlighted in RED colour.

The ERT Running No Logic will be required to be filled as the following sequence:

ERT/RoadCode/Chainage/Month/0001(RunningNo)-Year

Form X
Form D
Photo
Accident
U See U Act

Before

Upload File

In Progress

Upload File

After

Upload File

The Picture tab. All pictures attached to the ERT Task will be shown here.

[Form X](#) [Form D](#) [Photo](#) [Accident](#) [U See U Act](#)

Accident Investigation Form

[Upload File](#) [View](#)

[Form X](#) [Form D](#) [Photo](#) [Accident](#) [U See U Act](#)

Reported by:

[Upload File](#) [View](#)

User will be able to download the form, manually fill the form, and upload it into the system as shown above. Once the attachment is uploaded, the user will be able to view the file by clicking the 'View' tab.

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Form X	Form D	Photo	Accident	U See U Act
--------	--------	-------	----------	-------------

Reported By:	Description	
<input type="text"/>	<input type="text"/>	
Location	RMU to Handle	
<input type="text" value="--Please Select--"/>	<input type="text" value="--Please Select--"/>	
Scheduling Information		
Activity Code	Activity Name	
<input type="text" value="--Please Select--"/>	<input type="text" value="--Please Select--"/>	
Chainage From	Chainage To	Lane
<input type="text" value="Chainage From"/>	<input type="text" value="Chainage To"/>	<input type="text" value="--Please Select--"/>
Response Date	Response Time	
<input type="text" value="dd/mm/yyyy"/>	<input type="text" value="--:-- --"/>	
Finished Date	Finished Time	
<input type="text" value="dd/mm/yyyy"/>	<input type="text" value="--:-- --"/>	

For the Form X the user will be filling the required information as per **SAMPLE** view above.
All the details inside Form X will be filled inside the web system.

3.5.4 ERT Module – Listing Page Quick View and Edit

Search..

← prev 1 **2** 3 4 5 6 next →

Download Add ERT

ACTION	NO.	ERT NO	SECTION	LANE	TASK	SUBTASK LEVEL1	TASK DESCRIPTION	IS ACCIDENT	CREATED
Click Me ▶		Form X	Miri	Lane 1	Accident	Mandatory Exit	Accident lori terbalik	Accident	Aug-12
Click Me ▶		Form D							
Click Me ▶		Accident Form	Long	Lane 2	Accident	Attend	Acc melibatkan 2 buah kenderaan	Accident	Aug-12
Click Me ▶		Edit							
Click Me ▶		Delete	genu	Lane3	Obstacle	Bangkai	Spotted besi lorong EL	Not Accident	Aug-12

To view and edit the each ERT No. created will be available on the 'Click Me' tab at the listing page.

3.5.5 ERT Module – ERT Task Setup

ERT Task.

[Home](#) ▶ [PIT Task](#)

Type	Code	Name	Created Date	Main Code	Level 1 Code	
Main	MTASK	Sample Main Task	08-May-2019			<input type="button" value="Edit"/> <input type="button" value="Delete"/>
Level 1	L1	Sample Level 1	08-May-2019	MTASK		<input type="button" value="Edit"/> <input type="button" value="Delete"/>
Level 2	L2	Sample Level 2	08-May-2019	MTASK	L1	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

Page 1 of 1 • Total Records: 2

This is a setup module allowing users to Add / Update and Delete the ERT Task option list.

There will be 2 levels of categorization of ERT Task, namely:-

Main Task

Sub Task Level 1

This is the Editing screen for the ERT Task record. User need to select the record type (Main or Level 1), and then provide to Code to the task.

Click on Confirm button to save the record. To cancel, click Cancel button.

These records will be reflected into the ERT tablet application when user click the Refresh Parameter button from tablet.

3.5.6 ERT Module – ERT Main Task and Sub Task

Main Task: Work Activity
9091 (Other Road Maintenance)
9092 (Clear Road Reserve)
9093 (Non-Road Maintenance Activities)
9194 (Emergency Maintenance)

User will be able to choose main task from the above list activity.

Sub Task 1
Cleaning up the rock or earth falls
litter clean up
removing any obstruction from carriageway & shoulder
trenching on shoulder
clearing of vegetation / siltation from kerb
removing carcasses
clearing graffiti or unauthorized advertisements
retaining wall maintenance
maintaining and repairing road kerb
maintaining and repairing foot path
minor erosion repair
replacing manhole cover or grating
clearing manhole and underground conduit
reinstating signboard
reinstating guardrail
reinstating road furniture
clear road reserve
non road maintenance activities
emergency maintenance
others (text)

Then, regardless of the main task being selected, all of the above activity will be available for the user to select from the dropdown. If 'others' is selected then free text will be available to be filled.

3.6 Reports and Printout

System will be able to print Form X, Form D, Photos (WAR), Accident Investigation and U See U Act Form based on the data recorded by ERT users. All of the form can be referred at the Appendices.

3.7 Shift Information Sub-Module (Phase 2)

3.7.1 Functions (Phase 2)

This module will be later developed in the phase 2. The RAMS (ERT) module system consists of these functions:

Able to record ERT shift information

Able to record and track 'Laporan Pemeriksaan/Serah Terima Kendaraan'

Integrate new web development into existing 'RAMS' mobile application.

3.7.2 System Components

The system components will consist of **View, Add & Edit** function. This is crucial for monitor and tracking purposes.

‘ERT’ module is placed under existing RAMS system which is used in mobile application by ERT rep for daily monitoring.

3.7.3 System Design

From the requirements gathered, Figure 1.3, shows the planned flowchart of RAMS (ERT) system.

The requirement(s) for RAMS (ERT) module system are gathered below:

1. Able to upload and view JKRS Fax Emergency Work Instruction.
2. To fill in and view Form X from received Fax Instruction (JKRS)
3. Acquire accurate data onsite from update Form X, Form D and WAR during Emergency Work.
4. Able to download and upload Accident and U See U Act form into the system

3.7.4 User Interface (UI)

Below is the proposed layout for RAMS (ERT) module as shown in Figure 1.5, Figure 1.6, Figure 1.7, Figure 1.8, Figure 1.9, Figure 2.0, Figure 2.1 and Figure 2.2 respectively.

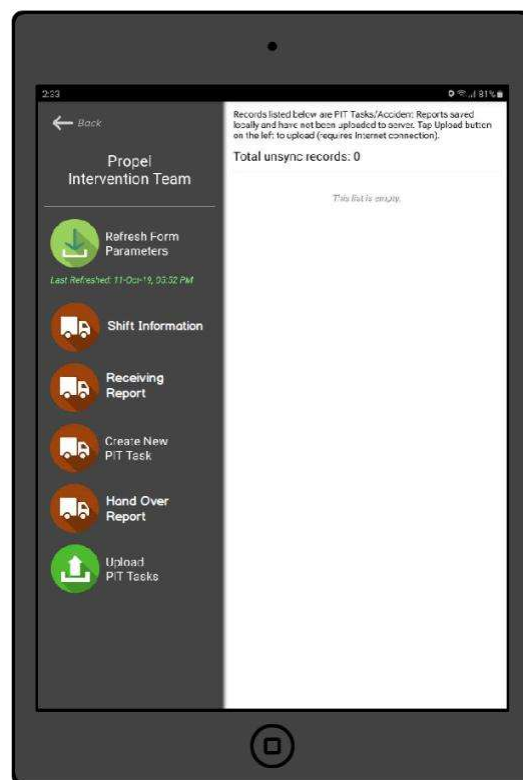


Figure 1.5 Homepage

ROAD ASSET MANAGEMENT SYSTEM (RAMS) FOR PERFORMANCE-BASED CONTRACTS FOR THE LONG TERM MANAGEMENT AND MAINTENANCE OF STATE ROADS [JALANRAYA NEGERI(JRN)] IN SARAWAK – PACKAGE 4 (MIRI DIVISION)

Shift Information

Shift A

Date:

Section: Vehicle Plate No:

Team Leader: ☐ Reviewed

Team Member 2: ☐ Reviewed

Team Member 3: ☐ Reviewed

Team Member 4: ☐ Reviewed

Traffic Management Control PIC: ☐ Reviewed

On Call Supervisor: ☐ Reviewed

Figure 1.6 Shift Information

Vehicle Checklist (Receive)

C3 (Shift A)

Date: Time:

Vehicle Plate No:

Speedo Mula: Speedo Tamat:

Checklist: ☐ Kad Minyak ☐ Touch & Go

Vehicle

<input type="checkbox"/> Tayar Utama	<input type="checkbox"/> Cermin Sisi
<input type="checkbox"/> Wiper	<input type="checkbox"/> Cermin Belakang
<input type="checkbox"/> Set Jet Tayar	<input type="checkbox"/> Lampu Brek
<input type="checkbox"/> Brek Tangan	<input type="checkbox"/> Lampu Isyarat
<input type="checkbox"/> Brek Kaki	<input type="checkbox"/> Lampu Matarah
<input type="checkbox"/> Tayar Simpanan	<input type="checkbox"/> Lampu Besar
<input type="checkbox"/> Hawa Dingin	<input type="checkbox"/> Lampu Beacon
<input type="checkbox"/> Set Peti Kecemasan	<input type="checkbox"/> Pemadam Api/Tarik Tamat
<input type="checkbox"/> Badan Kenderaan	<input type="checkbox"/> Minyak Brek
<input type="checkbox"/> Pembalik Cahaya	<input type="checkbox"/> Minyak Kenderaan
<input type="checkbox"/> Man	<input type="checkbox"/> Air Injin
<input type="checkbox"/> Steering	<input type="checkbox"/> Air Bateri

Remarks:

Vehicle Checklist (Receive)

C3 (Shift A)

Vehicle Equipment

<input type="checkbox"/> Hand Tamper	<input type="checkbox"/> Kuku Kambing - 1 no
<input type="checkbox"/> Slinding Wayar	<input type="checkbox"/> Habuk Kayu - 2 beg
<input type="checkbox"/> Blinkers & Bateri - 15 nos	<input type="checkbox"/> Kapak - 1 no
<input type="checkbox"/> Kon (750 mm) - 30 nos	<input type="checkbox"/> Parang - 2 nos
<input type="checkbox"/> Gergaji Enjin - 1 no	<input type="checkbox"/> Penukul - 1 no
<input type="checkbox"/> Chainsaw - 1 set	<input type="checkbox"/> Jerry Can Berisi Air - 20 lite
<input type="checkbox"/> Lampu Batan - 2 nos	<input type="checkbox"/> Tali Tunda
<input type="checkbox"/> Lampu Suluh - 3 no	<input type="checkbox"/> Skop (Gedan) - 2 nos
<input type="checkbox"/> Cold Mix - 2 beg	<input type="checkbox"/> Penyapu (Heavy Duty) - 2 no
<input type="checkbox"/> Pembuka Guardrail - 1 se	<input type="checkbox"/> Pengaut Sampah
<input type="checkbox"/> Cangkul - 2 nos	<input type="checkbox"/> Plastik Sampah - 15 nos
<input type="checkbox"/> Bendera Merah - 2 nos	<input type="checkbox"/> Tool Box

Remarks:

Safety Signage

<input type="checkbox"/> Awas	<input type="checkbox"/> Jalan kiri tutup (3 lorong)
<input type="checkbox"/> Jalan tutup (2 lorong) 400m	<input type="checkbox"/> Jalan kiri tutup (4 lorong)
<input type="checkbox"/> Jalan tutup (2 lorong) 200m	<input type="checkbox"/> Jalan kanan tutup (3 lorong)
<input type="checkbox"/> 80 km/j	<input type="checkbox"/> Jalan kanan tutup (4 lorong)
<input type="checkbox"/> 60 km/j	<input type="checkbox"/> Anak panah (Adjustable) - 2 nos
<input type="checkbox"/> Akhir had laju	

Remarks:

Figure 1.7 & Figure 1.8 Receiving Report

ROAD ASSET MANAGEMENT SYSTEM (RAMS) FOR PERFORMANCE-BASED CONTRACTS FOR THE LONG TERM MANAGEMENT AND MAINTENANCE OF STATE ROADS [JALANRAYA NEGERI(JRN)] IN SARAWAK – PACKAGE 4 (MIRI DIVISION)

Vehicle Checklist (Receive)

C3 (Shift A)

Safety Equipment

☐ Eye Goggles ☐ Fire Extinguisher

☐ Respirator

Summary

☐ Keadaan Baik ☐ Tindakan Susulan

Sender

Shukur ☒ Reviewed

Receiver

☐ Reviewed

Submit

Figure 1.9 Receiving Report

Vehicle Checklist (Hand Over)

C3 (Shift A)

Date **Time**

Vehicle Plate No

Speedo Mula **Speedo Tamat**

Checklist

☐ Kad Minyak ☐ Touch & Go

Vehicle

☐ Tayar Utama ☐ Cermin Sisi

☐ Wiper ☐ Cermin Belakang

☐ Set Jet Tayar ☐ Lampu Brek

☐ Brek Tangan ☐ Lampu Isyarat

☐ Brek Kaki ☐ Lampu Matarah

☐ Tayar Simpanan ☐ Lampu Besar

☐ Hawa Dingin ☐ Lampu Beacon

☐ Set Peti Kecemasan ☐ Pemadam Api/Tanah Tamat

☐ Badan Kenderaan ☐ Minyak Brek

☐ Pembalik Cahaya ☐ Minyak Kenderaan

☐ Hon ☐ Air Injin

☐ Steering ☐ Air Bateri

Remarks

Submit

Vehicle Checklist (Hand Over)

C3 (Shift A)

Vehicle Equipment

☐ Hand Tamper ☐ Kuku Kambing - 1 no

☐ Slinding Wayar ☐ Habuk Kayu - 2 beg

☐ Blinkers & Bateri - 15 nos ☐ Kapak - 1 no

☐ Kon (750 mm) - 30 nos ☐ Parang - 2 nos

☐ Gergaji Enjin - 1 no ☐ Penukul - 1 no

☐ Chainsaw - 1 set ☐ Jerry Can/ Benasi Air - 20 lite

☐ Lampu Batan - 2 nos ☐ Tali Tunda

☐ Lampu Suluh - 3 no ☐ Skop (Gedan) - 2 nos

☐ Cold Mix - 2 beg ☐ Penyapu (Heavy Duty) - 2 no

☐ Pembuka Guardrail - 1 se ☐ Pengaut Sampah

☐ Cangkul - 2 nos ☐ Plastik Sampah - 15 nos

☐ Bendera Merah - 2 nos ☐ Tool Box

Safety Signage

☐ Awak ☐ Jalan kiri tutup (3 lorong)

☐ Jalan tutup (2 lorong) 400m ☐ Jalan kiri tutup (4 lorong)

☐ Jalan tutup (2 lorong) 200m ☐ Jalan kanan tutup (3 lorong)

☐ 80 km/j ☐ Jalan kanan tutup (4 lorong)

☐ 60 km/j ☐ Anak panah (Adjustable) - 2 nos

☐ Akhir had laju

Remarks

Submit

Figure 2.0 & Figure 2.1 Hand Over Report

The image shows a mobile application interface for a 'Vehicle Checklist (Hand Over)'. The screen displays a form for 'C3 (Shift A)'. The form includes sections for 'Safety Equipment' with checkboxes for 'Eye Goggles', 'Respirator', and 'Fire Extinguisher'. Below this is a 'Summary' section with radio buttons for 'Keadaan Baik' and 'Tindakan Susulan'. There are also fields for 'Sender' and 'Receiver' names, each with a 'Reviewed' checkbox. A 'Submit' button is located at the bottom right of the form.

Figure 2.2 Hand Over Report


4.0 User Access Matrix

Proposed setup is as below:

Department	Name	Emergency Response Team			
		PC			Tablet
		View	Modify	Delete	Modify
IT Department	ICT	Y	N	N	N
Maintenance Department	Operations (ERT)	Y	Y	N	Y
	Operations (Supervisor)	Y	Y	N	Y
	Operations (Operation Executive)	Y	Y	Y	Y
	Operations (Head Maintenance)	Y	Y	Y	Y
	Operations (Region Manager)	Y	Y	Y	Y
	Operations (RAMS Executive)	Y	Y	Y	Y
JKRS Department	JKRS (Superior Officer, S.O)	Y	Y	N	Y
HQ Department	HQ, Technical Support	Y	N	N	N
	HQ, Operations Control	Y	Y	N	Y
	HQ, Audit	Y	N	N	N

5.0 Appendices

JKRS FAX TRANSMISSION

JABATAN KERJA RAYA		Road Civil Engineering Section JKR Bahagian Miri, 98000 Miri, Sarawak.		
Telefon : 085-442244 Fax : 085-417514				
FAX TRANSMISSION				
Kepada (To)	Managing Director Endaya construction Sdn. Bhd. Lot 1934, 1 st - 3 rd Floor, Marina Square, 98000 Miri, Sarawak.	Untuk Perhatian (For Attention)	Mohd. Riduan Bin Osman	
No. Fax (Fax No.)	: 085-421277	Salinan Kepada (Copy To)	Jurutera Bahagian JKR Bahagian Miri. AD (RCEA) JKR HQ Telefax: 082-203271 PJK (J&KS) PJ (Barsing)	
Daripada (From)	Tay Sian Tuan Road & Civil Engineering Section JKR Bahagian Miri			
No. Ruj. (Ref. No.)			Haribulan (Date)	: 25.06.2020
Bilangan Mukasurat Termasuk Salinan Ini (No. of Pages Including This Page)				

En. Riduan,

Memohon Untuk Membaiki Jalan Saeh, Niah.

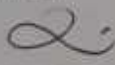
Dengan segala hormat, perkara di atas adalah dirujuk.

Melalui aduan yang diterima dari orang awam, Jalan Saeh Niah telah mengalami kerosakan.

Oleh itu, kami mohon pihak tuan menyelesaikan perkara ini dengan segera.

Perhatian anda mengenai perkara di atas adalah amat dihargai.

Thank you



Tay Sian Tuan
Penolong Jurutera Kanan(J&KS)
JKR Bahagian Miri

FAXED

02 JUL 2020

#Pages:

Please inform this office when remedial works / action on the above works are completed / had been taken.

Name of Officer :



Date of Work Completed/Action Taken :

Comment :

Please complete this portion & fax this sheet immediately to 085-417514

ROAD ASSET MANAGEMENT SYSTEM (RAMS) FOR PERFORMANCE-BASED
CONTRACTS FOR THE LONG TERM MANAGEMENT AND MAINTENANCE OF STATE
ROADS [JALANRAYA NEGERI(JRN)] IN SARAWAK – PACKAGE 4 (MIRI DIVISION)

FORM X

  <small>REHABILITATION DIVISION</small>	CONTRACT NO: PWD/MO/R125/2019		Reported by:	
	PERFORMANCE-BASED CONTRACT FOR THE LONG-TERM MANAGEMENT AND MAINTENANCE OF STATE ROADS [JALANRAYA NEGERI (JRN)] IN SARAWAK – PACKAGE 4 (MIRI DIVISION)		PUBLIC	
	WORK REQUEST FORM (FORM X)		ENGINEERING CONSULTANT	
			S.O.'s REPRESENTATIVE / S.O.	
		OTHERS:		
IDENTIFICATION DATA				
Date:			Time:	
Name:				
Contact Details:	Handphone:			
	Workphone:			
	Email:			
Location:				
Description:				
RMU to Handle:			Attention to:	
Verified by:			Date:	Time:
Comment:				
Assigning Work Reference:				
SCHEDULING INFORMATION				
Activity Code:	Activity Name:			
Estimated Crewdays:	Date line:			
Assigned to:	Date line:	Work Schedule on:	Work Completed on:	
Verified by:	Date:	Case Closed on:	Vetted by:	
Comment:				

Accident and Investigation Form



ENDAYA CONSTRUCTION SDN. BHD. (049693-V)

ACCIDENT INVESTIGATION FORM (NOTIFICATION OF ACCIDENT / DANGEROUS OCCURRENCE)

SECTION A - REPORTERS INFORMATION (MAKLUMAT PEMBERITAHU)

FULL NAME (NAMA PENUH): _____

DATE OF REPORTING (TARIKH MEMBUAT LAPORAN):

--	--	--	--	--	--	--	--

COMPANY'S NAME (NAMA SYARIAH): _____

TIME OF REPORTING (MASA MEMBUAT LAPORAN):

--	--	--	--	--	--

 HOURS (JAM)

SECTION B - VICTIM'S INFORMATION (MAKLUMAT MANGSA)

INJURED PERSON (S) NAME (NAMA PEKERJA YANG CEDERA):

- (i) _____ SEX: ☐ M (LELAKI) ☐ F (PEREMPUAN)
- (ii) _____ SEX: ☐ M (LELAKI) ☐ F (PEREMPUAN)
- (iii) _____ SEX: ☐ M (LELAKI) ☐ F (PEREMPUAN)

POSITION (PEKERJAAN)	NATIONALITY (KEWARGANEGARAAN)	EXPERIENCE (PENGALAMAN)
(i)		
(ii)		
(iii)		
(iv)		

IMS/HSE/FR-37 REV1

SECTION C - DETAIL OF INCIDENT (MAKLUMAT TERPERINCI KEJADIAN)

RISK : EVALUATION OF LOST POTENTIAL IF NOT CORRECTED
(RISIKO : PENILAIAN POTENSI YANG KEHILANGAN SEGERANYA TIDAK DIPERBAIKI)

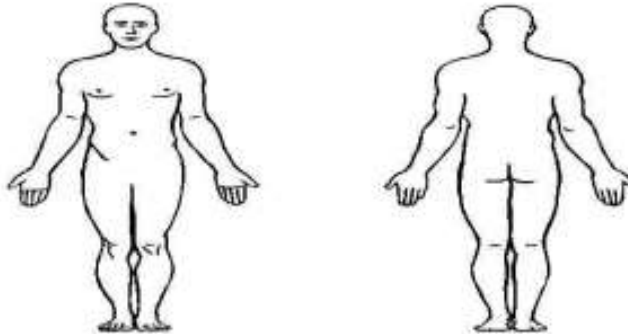
- | | | |
|--|---|--|
| (i) <input type="checkbox"/> SERIOUS (SERIOUS) | <input type="checkbox"/> MODERATE (SEDERHANA) | <input type="checkbox"/> MINOR (KECIL) |
| <input type="checkbox"/> FREQUENT (KERAP) | <input type="checkbox"/> OCCASIONAL (SERAHI-SEKALA) | <input type="checkbox"/> SELDOM (JARANG) |
| (ii) <input type="checkbox"/> SERIOUS (SERIOUS) | <input type="checkbox"/> MODERATE (SEDERHANA) | <input type="checkbox"/> MINOR (KECIL) |
| <input type="checkbox"/> FREQUENT (KERAP) | <input type="checkbox"/> OCCASIONAL (SERAHI-SEKALA) | <input type="checkbox"/> SELDOM (JARANG) |
| (iii) <input type="checkbox"/> SERIOUS (SERIOUS) | <input type="checkbox"/> MODERATE (SEDERHANA) | <input type="checkbox"/> MINOR (KECIL) |
| <input type="checkbox"/> FREQUENT (KERAP) | <input type="checkbox"/> OCCASIONAL (SERAHI-SEKALA) | <input type="checkbox"/> SELDOM (JARANG) |

EXPLAIN (TERANGKAN): _____

DATE & TIME OF ACCIDENT (TARIKH & MASA KEMALANGAN): _____ & _____ HOURS

NUM. OF INJURED PERSON (JUMLAH PEKERJA CEDERA): _____

CIRCLE WHICH IMPACT PART OF THE BODY (BILATKAN BAHAGIAN YANG TERCEDERA)



EXPLAIN (HURAIKAN): _____

DAYS LOST FROM WORK (JUMLAH HARI TIDAK BEKERJA): _____ DAYS (HARI)

INCIDENT COST, IF APPLICABLE (KOS KEJADIAN, JIKA BERKAITAN): RM _____ *N/A

COST ESTIMATED FOR INJURY (ANGGARAN KOS UNTUK KECEDELAAN): RM _____ *N/A

ACTUAL COST (KOS SEBENAR): RM _____ *N/A

PROPERTY DAMAGE (KEROSAKAN HARTA BENDA): ☐ YES (YA) , ☐ NO (TIDAK)

IF (YES) STATE (NYATAKAN): _____

IMS/HSE/FR-37 REV1

SECTION D – DESCRIPTION (KETERANGAN LANJUT)

DESCRIBE HOW THE ACCIDENT OCCURRED (JELASKAN BAGAIMANA KEJADIAN BERLAKU):

INCIDENT ANALYSIS (ANALISIS KEJADIAN)

CONCLUSION (KESIMPULAN)


ROOT CAUSE OF ACCIDENT (PUNCA PENYEBAB KEMALANGAN):

- ☐ UNSAFE ACTION (TINDAKAN YANG MERBAHAYA)
☐ UNSAFE CONDITION (KEADAHAN YANG MERBAHAYA)

STATE (NYATAKAN):

IMS/HSE/FR-37 REV1

U See U Act Form



ENDAYA CONSTRUCTION SDN. BHD. (049693-V)
UNSAFE ACT AND CONDITION FORM

Nama Pelapor *
Reporting Name


Tempat Kejadian *
Location

Skop Kerja *
Work Scope

Maklumat Mengenai Information regarding	
Tanda (✓) Pada Petak Yang Berkenaan Dan Beri keterangan Please (✓) in box if relevant and describe	
Perlakuan tidak selamat Unsafe Act	Kedaaan Perschitaran tidak Selamat Unsafe Condition

Cadangan Penambahbaikan Recommendation for Improvement

IMS/RMD/FR-30 (Rev.01)

ENDAYA CONSTRUCTION SDN. BHD. (049693-V) UNSAFE ACT AND CONDITION FORM		
<div style="border: 1px solid black; background-color: #cccccc; padding: 5px; width: fit-content; margin: 0 auto;">FOR OFFICE USE</div>		
Date received :	Committee review on:	
<div style="border: 1px solid black; height: 40px; margin-bottom: 5px;"></div> <div style="text-align: center; font-size: small;">Comments</div>		
HSE Section	Safety Committee Chairman	IMS Management Representative
<div style="border: 1px solid black; background-color: #cccccc; padding: 2px;"> Tindakan yang Diambil Action Taken </div>		
Date Action Taken :		Action By:
<div style="border: 1px solid black; background-color: #cccccc; padding: 2px;"> Keberkesanan Tindakan Effectiveness of Action Taken </div>		
Date :		Review By:
<small>IMS/RMD/FR-3D (Rev.01)</small>		