Product Specification Document for Safe Start Inspections App

TABLE OF CONTENTS

1. Introduction and Purpose Statement

1.1. Overview

The Safe Start app is a vehicle administration system used to monitor and manage vehicles, plant and equipment used in the workplace. As a means of determining a piece of equipment's safety prior to use, a pre-start inspection is carried out and documented, highlighting any items which may require attention.

The Safe Start app will function on the iOS and Android platforms, with a functioning database system on a secure website. A tablet form of the app will operate with the same functionality as the phone apps, with the added feature of the web-based database.

Safe Start will target construction, mining and transport companies. The phone app will be aimed towards workers in the field who carry out the vehicle inspections and maintenance. The tablet application and web-based system will be targeted towards Plant and Equipment managers as well as on-site supervisors.

The app will aim to streamline the data collection and entry process while simplifying management of operational maintenance and incidental faults.

The strength of the Safe Start app will be in its simplicity. A simple interface for data entry will allow for easy use, shortening the length of time required to carry out a vehicle inspection.

Note: If there are additional screen items to the right of the original they will be accessed in the app by scrolling down.

2. Functional Requirements

2.1. General

FR_000	Startup

Upon startup, the application will display a home screen displaying the company logo. This page will direct to the menu screen (FR_001) automatically. During the first startup, the settings screen will load first (FR_002), where details will be required to be saved prior to returning to the menu screen.

FR_001	Menu

The menu screen will direct users around the app.

Application Menu screen should look like:
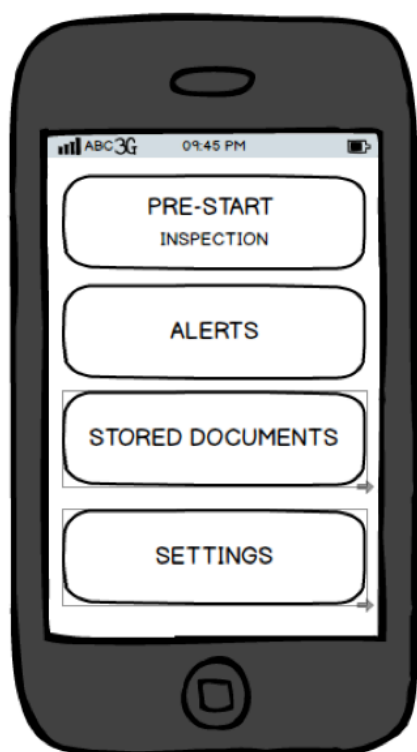
Menu screen contains the following chapters (links to specific screens):

1. Pre-start Inspection. Link to FR_005 or FR_006 (see FR_005 for details).
2. Alerts. Link to FR_003.
3. Stored Documents. Link to FR_004.
4. Settings. Link to FR_002.

The alerts tab in the phone app will receive alerts or fault notifications from the database. The alerts button should display a number to indicate how many notifications require attention.

The number of pending or incomplete inspections in stored documents will also be indicated.

FR_002	Settings

The settings screen will collect information which will provide auto-fill information and suggestion boxes within the daily inspection. This will include:

Buttons:

Save- Save data and return to FR_001.

Back- Return to FR_001.

The app will function in two capacities, an email based system and an online database system. The email based system will operate where completed inspections are compiled into PDF documents then emailed to the designated email address or addresses. Alternatively, the database system will contain synchronized records uploaded from user handsets and will also allow for data to be directly input and monitored by subscribed users.

When entering the app for the first time, setup information is required. This will collect:

• Operators name

• Operators email address

• Plant and Equipment managers name

• Plant and Equipment managers email address

• Selecting whether the email system will be used or the database system. Where the database system is selected the following will require an answer.

• Safe Start ID number (Database subscription ID)

After this initial information is added and stored in settings, the app will return to the main menu screen (FR_001) and be able to be used.

Stored data can be automatically added to inspections when using the email system. Multiple names, etc. can be added to each data field, which will appear in inspections (FR_005), as a suggestion/drop box. These names can be added or removed by returning to the settings page.

Adding a signature will require the user to take a photo of their signature. When the picture is taken it will be able to be cropped, rotated and zoomed in or out to fit in a rectangular signature line which will be added to completed inspections.

FR_004	Stored Documents

Inspections which are completed will be stored on the phone. These will be able to be accessed and viewed through the stored documents section. These will be able to be resent to new email addresses if it is being used in the email system from the stored documents area.

When inspections are completed but are not able to be sent due to poor connectivity, they will continue to attempt to resubmit at certain intervals. These will be stored in the stored documents section. If the app is restarted and there are completed inspections which require submitting, the user will be prompted to re-send.

Pending inspections can be opened and changes made. If an inspection is paused/exited, it can be continued from here before it is submitted.

All stored documents are stored from most current to least current.

A search function is available to search for certain Plant ID/Registration or Date and Time.

Confirmation is required before deleting documents.
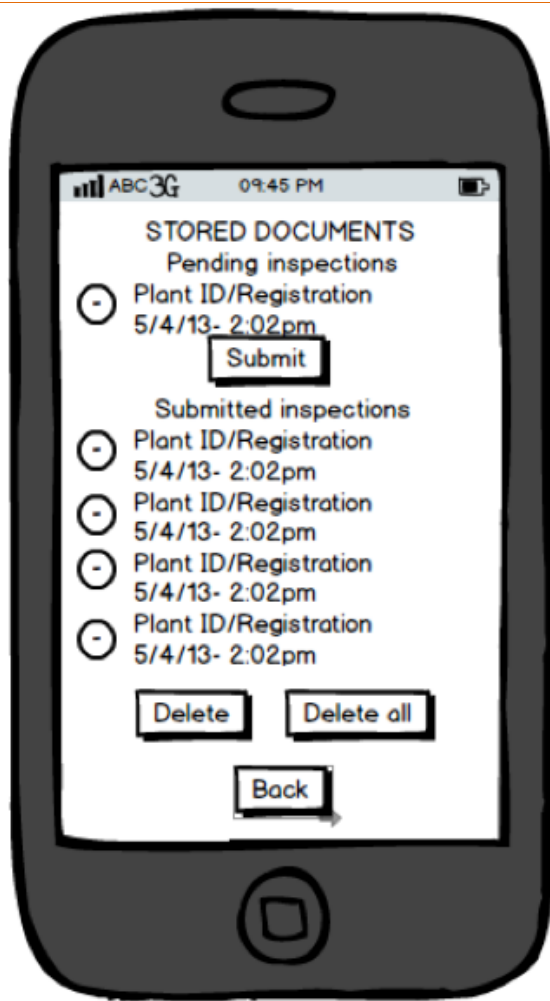
Buttons:

Submit- Selected pending inspections will be submitted

Delete- Delete selected submitted inspections (with confirmation)

Delete all- Delete all submitted inspections (with confirmation)

Back- Return to FR_001.

FR_005	Daily Inspection Checklist

When Pre-Start Inspection is chosen, if the email system has been selected through the settings, the button will direct to FR_006. If the database has been selected and a Safe Start ID has been entered this screen will display:
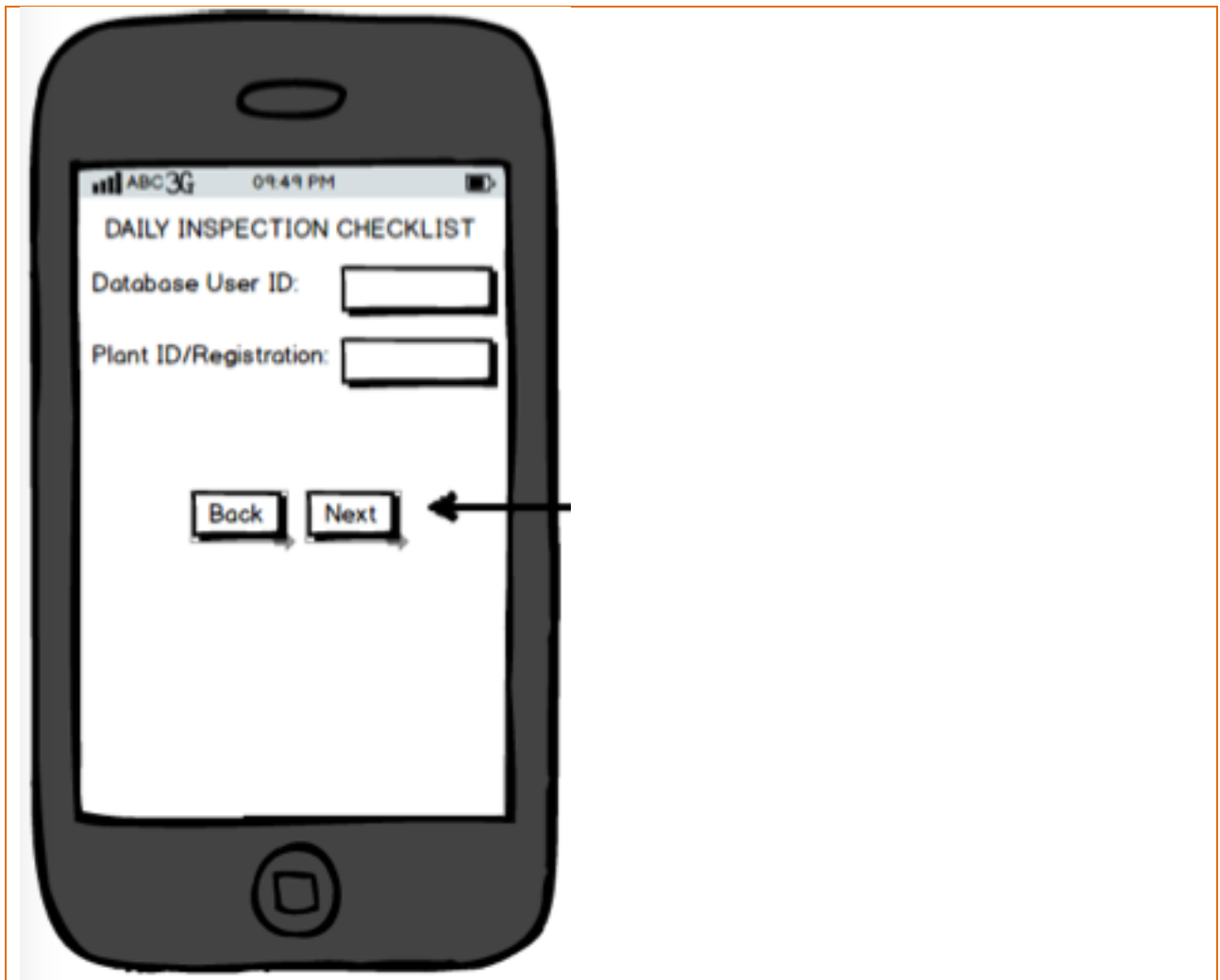
Buttons

Back- Return to FR_001

Next- Continue to FR_006

Safe Start ID (Database User ID) will auto-fill from settings (FR_002) can be edited/changed to a different ID.

When next is pressed, the database is checked. If there is no recorded Plant ID/Registration this warning will display:

When an inspection is started, the vehicle ID and Safe Start ID is entered and submitted. This information will be verified against stored vehicles in the identified subscribers' database. If there is no previous entry of a vehicle with that ID, confirmation will be required to verify that it is the first entry of that vehicle. If it is the first entry, all data on the vehicle will be required. If the
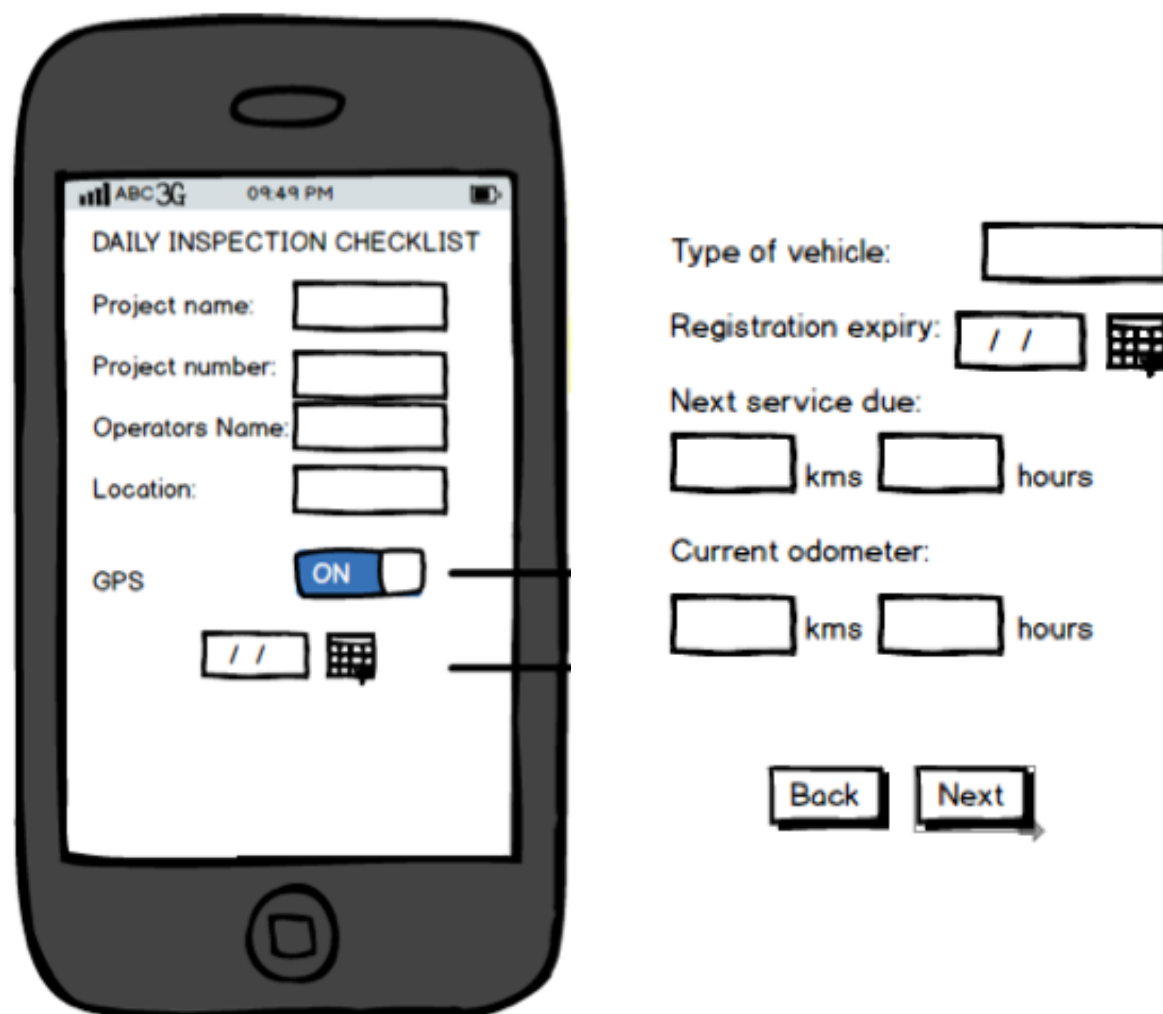
user believes that it is not the first inspection being completed, the vehicle ID should be checked and resubmitted by the user.

When a user attempts to do an inspection for a vehicle, any alerts that are outstanding in the database will be identified. When the Plant ID/Registration is entered, the alerts appear on the screen to make the user aware of potential hazards with the vehicle. These will be required to be checked again by the user when the inspection is done (they will all default to N/A).

FR_006	Daily Inspection Checklist Cont.

This screen will follow once FR_005 data is confirmed:

Buttons

Back- Return to FR_005 (if in database system) or FR_001 (if in email system)

Next- Continue to FR_007

If a stored vehicle is identified in the database, all cells with non-variable information will be auto-filled from the database. Non-variable data items are: Project name, Project number, Type of vehicle, registration expiry, next service due. All remaining variable information will remain blank requiring data entry except for operators name, which will auto-fill from settings.

If the data entered for the item 'current hours' exceeds 24 hours and the last inspection was recorded less than 24 hours ago confirmation of the accuracy of the data will be required. Similarly, if the data entered for the item kms exceeds 500km's and the last inspection was

recorded less than 24 hours before a notification will appear to confirm the accuracy of the data. Additionally, if a vehicle's current hours or km's has reduced, a prompt confirmation of the data's accuracy will also be required. If the user confirms them as correct, raise an alert in the database to inform the manager of the data discrepancy.

When no Safe Start ID has been entered and the email system is being used, the fields which have data stored in settings will provide suggestions to the user for input.

GPS will locate user on a map if the user selects to turn it on. If GPS is used, location is not compulsory but information can be added if the user wishes.

Auto-fill Date and Time.

Database alerts:

Alert in report if Registration expiry date is in 1 month or less (The 1 month duration can be changed from within the database).

Alert in report if Current odometer numbers are larger than in "Next service due". Alerts can be raised sooner by a margin selected from within the database.

FR_007	Daily Inspection Checklist Safety

Once FR_006 information is entered and next is selected. The user will be directed to the pre-start inspection. The screen should look like this and scroll through all questions to the Back, Next option:

Buttons:

Back- Link to FR_006

Next- Link to FR_008

All items will default to N/A.

Vehicle stability is not recorded in the database or alerts.

Fire extinguisher to be auto-filled from the database.

If no is selected in item 1 (Is the vehicle stable?) pop up box will display with the words: "Danger. Please secure the vehicle before continuing". Okay must be selected before the inspection can continue.

If no is selected in item 3 (Are you authorised in the use of this vehicle?) a pop up box will be displayed with the words: "Danger. Do not inspect any vehicle unless you are authorised."

For all other items. If no is selected, alert in the report.

If the 'Date of next inspection – fire extinguisher' is in 1 month or less – alert in the report.

FR_008	Daily Inspection Checklist Cabin

Once FR_007 is complete, user will be directed to a cabin inspection.

It should look like this:
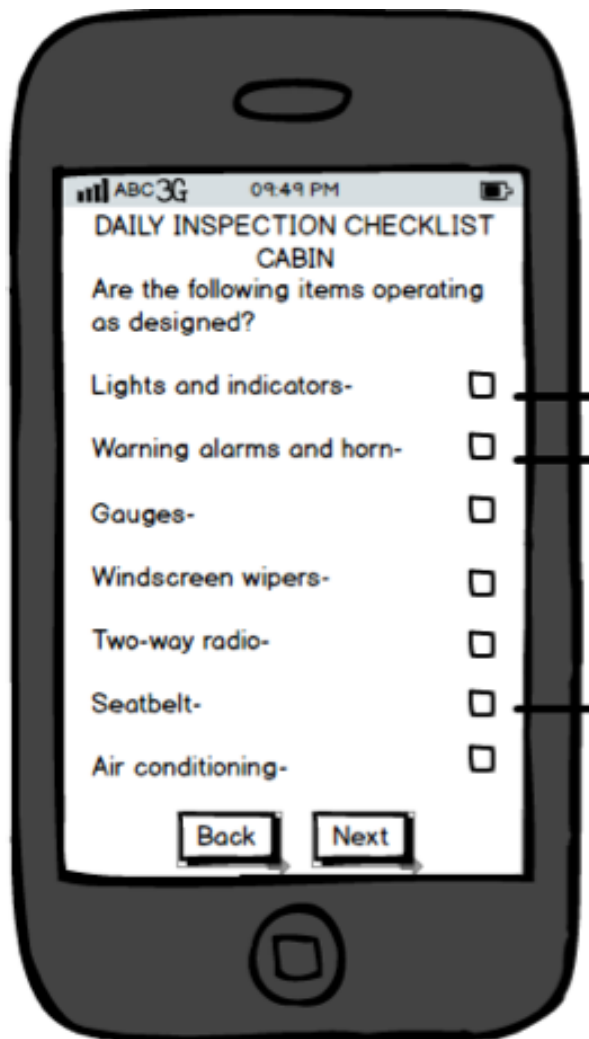
Buttons:

Back- Link to FR_007

Next- Link to FR_009

All boxes start blank. Each click will rotate through tick, cross and N/A. The user must address each item before being allowed to move to the next page. If any items are left blank, prompt the user to complete all boxes before moving on.

A cross will raise an alert. Alerts which have been raised in an inspection will be recorded in the database.

The following items are critical alerts: Lights and indicators, warning alarms and horn, seatbelt.

Critical alerts will result in a notification being sent to specific users in the form of a push notification (eg. Plant and equipment managers or mechanics). They will arrive in the users' Alert section as a fault notification See FR_020.

FR_009	Daily Inspection Checklist Structural

Once the cabin checklist FR_008 has been completed the structural checklist will commence.

The screen should look like:

Buttons:

Back- Link to FR_008

Next- Link to FR_010

All items will default to N/A.

If no is selected, alert in the report.

For item 3 (Are the tyres correctly inflated, with good tread and wheel nuts tight?) If no, add question (slide down to reveal)

FR_010	Daily Inspection Checklist Mechanical

Once the structural checklist FR_009 has been completed the user will be directed to the mechanical checklist. The screen should look like this:

Buttons:

Back- Link to FR_009

Next- Link to FR_011

All questions will default to N/A.

All boxes start blank. Each click will rotate through tick, cross and N/A. The user must address all of the boxes before being allowed to move to the next page. If any items are left blank, prompt the user to complete them before moving on.

If no is selected for item 1 (Have you isolated the vehicle?) A pop up question will display:

If no is selected for any of the items, alert in the report.

The following items are critical alerts; does the vehicle start, is the steering functioning properly, do the foot and hand brakes work properly.

Critical alerts will result in a notification being sent to specific users in the form of a push notification (eg. Plant and equipment managers or mechanics). They will arrive in the users' Alert section as a fault notification See FR_020.

FR_011	Daily Inspection Checklist Additional

Once the mandatory checks, FR_007, FR_008, FR_009, FR_010, have been completed the user will be directed to the additional checklist menu. It should look like this:
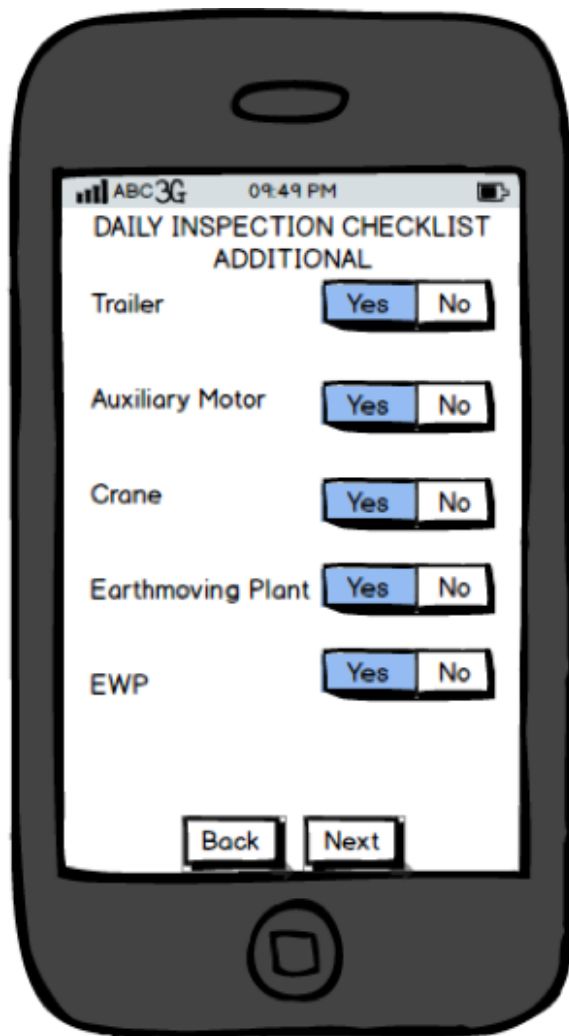
Buttons:

Back- Link to FR_010

All questions will default to "No".

If the user selects 'Yes' for any of the items they will be directed to the corresponding screen once next is selected in order of appearance below:

1. Trailer: See FR_013 for details.

2. Auxiliary Motor: See FR_014 for details.

3. Crane: See FR_015 for details.

3. Earthmoving Plant: See FR_016 for details.

4. EWP: See FR_017 for details.

FR_012	Daily Inspection Checklist Review

The review screen should look like this:
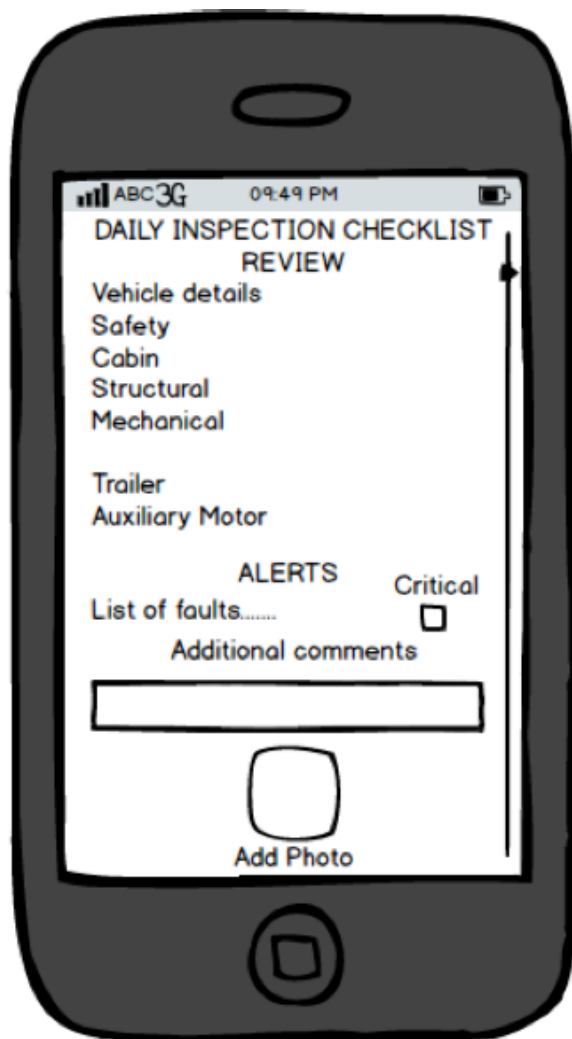
Where trailer is added, create/update in the database as its own Plant ID/Registration item but include the Project Name, Project Number, Operators Name, Date and Time & Location used in the original vehicle inspection.

Auxiliary motor, loading crane, mobile crane, earthmoving equipment and EWP should remain under the same Plant ID/Registration identified in the vehicle inspection.

All alerts will have a + option for adding comments.

Items in this view (Vehicle details etc.) will have a tick beside to show that they are complete. These items will be linked back to those pages for changes to be made if necessary.

Automatically add signature if one is stored in the settings.

Scroll down to confirm submission items:

Buttons:

Submit- Prompt box appears (Confirm- Email is sent or database is updated, Back- Prompt box disappears)

Back- Link to FR_011 or previous additional checklist

Ok- Link to FR_001

FR_013	Daily Inspection Checklist Trailer

If the user opts to complete a Trailer inspection from the Additional screen FR_011, they will be directed to this screen:

All items will default to N/A.

For item 1 (Is the trailer stable?)

If no is selected pop up question will

DANGER

Please secure the vehicle before continuing

Ok

appear:

For item 4 (Are the tires correctly inflated, in good working order and with wheel nuts tightened?) If no add a question which will slide down once 'No' is selected:

Are you authorised to inflate/ change tyres?

Yes | No | N/A   If No →

DANGER

Do not work on tyres unless authorised

Ok

If 'No' is selected for any other items alert in the report.

Buttons:

Back- Link to FR_011

Next- Link to other additional items selected "Yes" on FR_011 or FR_012 if no other items were selected.

FR_014	Daily Inspection Auxiliary Motor

If Auxiliary Motor is selected from FR_011 (Additional Checklist) the user will be directed to this screen. The screen will look like this:

All items will default to N/A.

If no is selected for item 5

(Test the residual current

 device.

Does it function as designed?)

a pop up warning will appear: ->

If 'No' is selected for any other item, alert in the report.

Buttons:

Back- Link to FR_011, or other additional checklist.

Next- Link to other additional items selected "Yes" on FR_011 or FR_012 if no other items were selected.
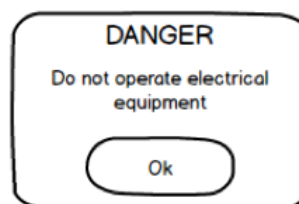
FR_015	Daily Inspection Checklist Crane

If Crane is selected from FR_011 (Additional Checklist) the user will be directed to this screen. The screen will look like this:

All items will default to N/A.

If 'No' is selected for any of the items, alert in the report.

Buttons:

Back- Link to FR_011, or previous additional checklist.

Next- Link to other additional items selected "Yes" on FR_011 or FR_012 if no other items were selected.

FR_016	Daily Inspection Checklist Earthmoving Plant

If Earthmoving Plant is selected from FR_011 (Additional Checklist) the user will be directed to this screen. The screen will look like this:

All items will default to N/A.

If 'No' is selected for any of the items, alert in the report.

Buttons:

Back- Link to FR_011, or previous additional checklist.

Next- Link to other additional items selected "Yes" on FR_011 or FR_012 if no other items were selected.

FR_017	Daily Inspection Checklist Elevated Work Platform

If EWP is selected from FR_011 (Additional Checklist) the user will be directed to this screen. The screen will look like this:

All items will default to 'N/A'.

If 'No is selected for item 1

(Are the ground conditions suitable?)

A warning will pop up displaying the following message: →

Danger
Do not continue if ground conditions are not suitable
Ok

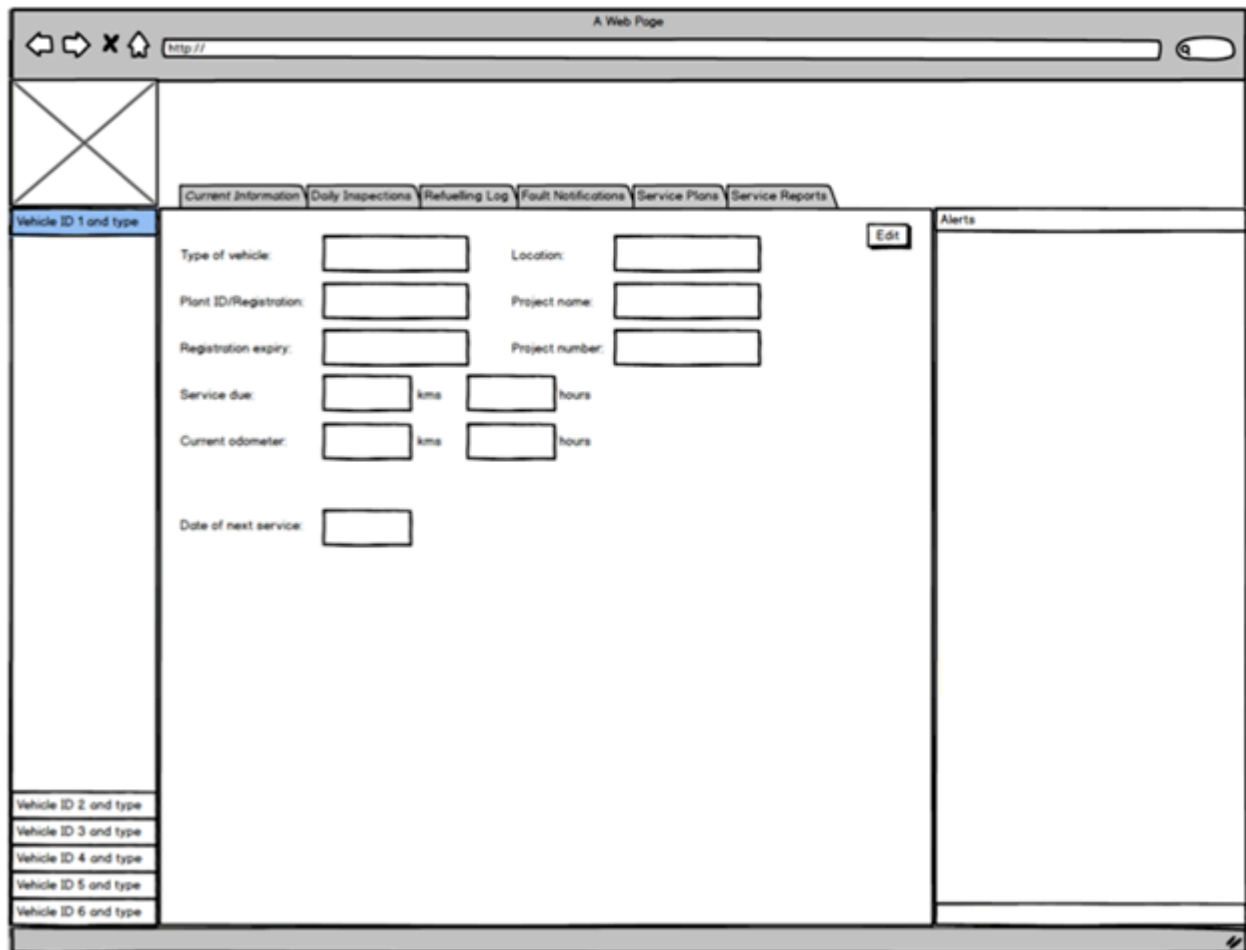If 'No' is selected for any other item, alert in the report.

Buttons:

Back- Link to FR_011, or previous additional checklist.

Next- Link to other additional items selected "Yes" on FR_011 or FR_012 if no other items were selected.

FR_018	Online Database Current Information

Note: Tabs indicated on the picture do not indicate actual pages required

Current Information page

Current information is where data is sourced for inspection auto-fills. When it is edited, following inspections will be auto-filled with this new data.
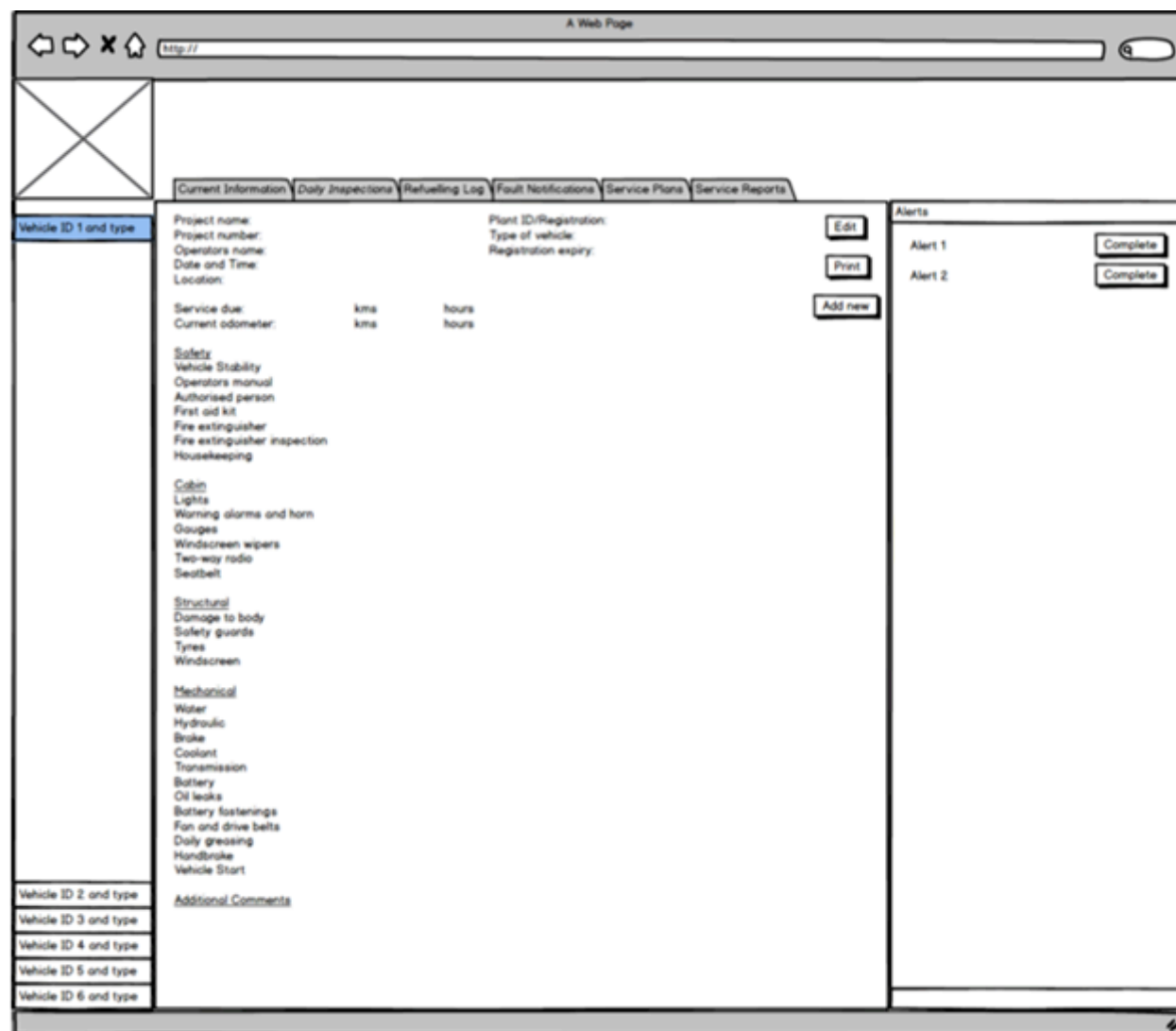
Information displayed on this page will only be able to be edited after the edit button has been selected. Changes will be saved and any inspections done will reflect these changes.

Where vehicles are selected on the left panel, they will be sorted by their Plant ID/Registration followed by the equipment type. E.g. 823BBI Toyota Hilux.

Analytical information will be compiled from the data to give the user information regarding the vehicles use. An example of this analysis is to produce a projected date of next service. Date of next service will be calculated on an average of the machines hours or km's per day or week in relation to its current and next service hours or km's.

FR_019	Online Database continued

Note: Tabs indicated on the picture do not indicate actual pages required

Daily Inspection page

The daily inspection page will display the details of the most recently completed inspection for that vehicle. Changes will be able to be made through the database page by pressing the edit button. Once in edit mode, all entries of that particular inspection will be able to be edited. New inspections will also be able to be completed through this page where the user can complete an inspection and it is saved to the database.

A list of previous inspections (sorted by date, most current to least) will be on display on this page. An alerts list will also be present, as shown above. From here alerts will be able to be closed out. The alert will link to the inspections that the alert was identified in. When this is pressed, the user must confirm that it is complete and a field will allow comments to be added. The date, time and user are all recorded against this closed out alert.

From this page, a daily inspection can be generated for printing. This generated form will not offer any analytical information, only the details of the inspection. See FR_021.

Manage page

The manage page will allow the inspection settings to be changed. Changes made through this section will be able to affect all or individual items.

Items to be managed are:

- Responsible person (database user)
- Adding or removing a field
- Editing a field
- Critical alerts
- Required regularity of inspections
- Day and regularity of Action list generation
- Adding or removing a Vehicle

The subscription manager will have additional privileges through their manage page. They will be able to invite other users (Responsible people) into their subscription. They will also be able to remove these people from the subscription. The subscription manager will be the only person able to make changes to all items of equipment, unless they allocate another user those privileges.

Add/Remove field

Vehicle inspection items will be able to be added or removed through the database. This will allow authorized users to select inspection items which are relevant to that particular piece of equipment. Only items which are selected through the database will appear on the app.

Any items added will require a short title which will appear on the daily inspection report as well as a question which will appear in the app. The desired outcome will be required to be identified by the user (E.g. Yes or No)

Alerts

Alerts which have been raised in an inspection will be recorded in the database. Critical alerts will result in a notification being sent to specific users in the form of a push notification (eg. Plant and equipment managers or mechanics). They will arrive in the users' Alert section as a fault notification.

The following faults will raise a critical alert:

- Lights and indicators (Cabin)

- Warning alarms and horn (Cabin)

- Seatbelt (Cabin)

- Tyres (Structural)

- Vehicle start (Mechanical)

- Steering (Mechanical)

- Brakes (Mechanical)

- Residual Current Device (Auxiliary Motor)

Critical alerts will be highlighted in the review to make the user aware that a fault notification will be sent for those items. These critical alerts will be able to be managed through the database, where particular inspection items can be added or removed as critical items as the database

user wishes.

Once a critical alert is raised in an inspection, a push notification will be sent to responsible users phone and email in addition to being documented in the database. Users who receive these alerts will be nominated for each vehicle through the manage page. See FR_020 for an example of a fault notification.

Reoccurring alerts in the database will not create new alert items. All outstanding alerts for a particular fault will be linked/grouped together. When weekly and monthly vehicle reports are generated, these items will be identified on the days which they were noted in an inspection.

Reports page

The report page will be where reports will be generated. Weekly and monthly reports will give an overview of the hours or km's accrued in the previous period as well as any faults. A bar/line graph will indicate the comparison of hours/km's accumulated over the previous month or week compared to the previous 6 months or weeks. Another bar graph will compare the number of inspections completed over the previous 6 weeks or months. Numerical figures will accompany these graphs.

An action list can be generated through this page. A list will be generated and emailed to the email address of the responsible person identified in the manage page. A current list will also be able to be generated and printed as the user wishes.

Contact page

The contact page will allow users to send emails to Safe Start Inspections

Important note about the database

As access to the database will be priced on the number of vehicles being used by a subscription, limiting the number of vehicles to the number paid for will be necessary.

FR_020	Fault Notification- Output

Project name:

Project number:

Operators name:

Date and Time:

Location:

Plant ID/Registration:

Type of vehicle:

Current odometer: kms   hours
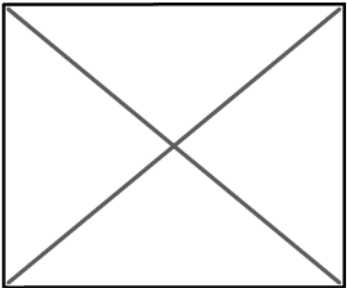
Fault type:

Fault details:

Additional comments:
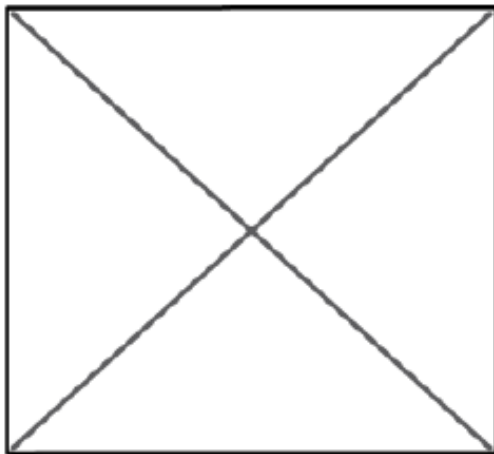
A fault notification will be sent to the plant and equipment manager when a critical alert is raised. The details of the fault and a picture will be forwarded to the responsible manager with a push notification.

FR_021	Daily Inspection- Output

A green animated tick will indicate a desired response from the inspection. A red animated cross will indicate an undesired response from the inspection.

The output document in the email system will include the Safe Start logo and the company details in the PDF format. The inspection items will be located in the top half of an A4 page. The bottom half will be able to have advertising added. The company disclaimer will be incorporated into the footer.

As a part of the subscription, minor adaptation to the document may be incorporated in the form of company information and logos. When printed, daily and weekly reports will be printed in the top half of an A4 page, where two vehicles can fit on the one printed A4 page. Monthly printed reports will print over a whole A4 page.

It is envisaged that in the future, inspections and output documents will be able to be adapted to output in a particular company's format.

Backend information collection

A series of information will be collected for Safe Start Inspections analysis. This information will include:

- Weekly, Monthly and Total number of inspections
- Breakdown of each type of inspection (Additional items)
- Changes made to inspection items (Add/remove/editing)
- New inspection items added
- Email inspections completed
- A breakdown of usage information for each subscription

Additional Notes:

- UI of iPad/Android tablet app design has not been predesigned and we are open to your suggestions from designers and developers.
- For viewing the database in the iPad/tablet app, a native application is not necessary for now. Information can be displayed via a web browser interface (in-app).
- The iPad app should have all base functionality of the smartphone app – with the added functionality of being able to view data from the database.