EWN Zone Management Proposal for NBN Co:

EWN's understanding of NBN Co requirements:

NBN is seeking to leverage the threat information currently received from EWN (via the Early Warning System) to manually highlight various NBN Work Zones around Australia with an appropriate threat level in order to manage the access to these areas by NBN personnel in the field.

NBN would also like to leverage their investment in the EWN Situation Room by viewing the current status of each zone as a data layer in the Situation Room. This will enable easy visual identification as per the following scale:

- Green Zone – Access allowed as per normal BAU process (default status)
- Amber Zone – Proceed with caution
- Red Zone – Restricted access to needs only basis
- Black Zone – Danger, keep out

An EWN Alert will be sent to all personnel registered for alerts of Severe Weather and Natural Hazards affecting zones they connected too.

An NBN Zone colour change notification will also be sent to all personnel registered for alerts for each zone whenever NBN change that zones status.

A zone may change status by the following methods:

- An NBN Shift Manager or EMT member manually changes the status

Please note that automatic zone changes and subsequent alerts are not to be allowed. A zone change or a zone change alert must be manually initiated by NBN operator.

Functionality:

Boundary data / Zone Definitions & Display

Postcodes will be used as the default NBN zones and will be based on the February 2015 postcode database. EWN are to provide the postcode information initially and moving forward.

A zone will consist of a single postcode and should be able to have a unique descriptive name (i.e. 'North Sydney – 2060') associated with it.

Any areas without postcode data as provided by EWN should have a suitable name associated with it (i.e. 'North West NSW') and should still appear on the map.

A zone will be set as green by default (BAU) but can change Alert Colour Level to either Amber, Red or Black when the following occurs:

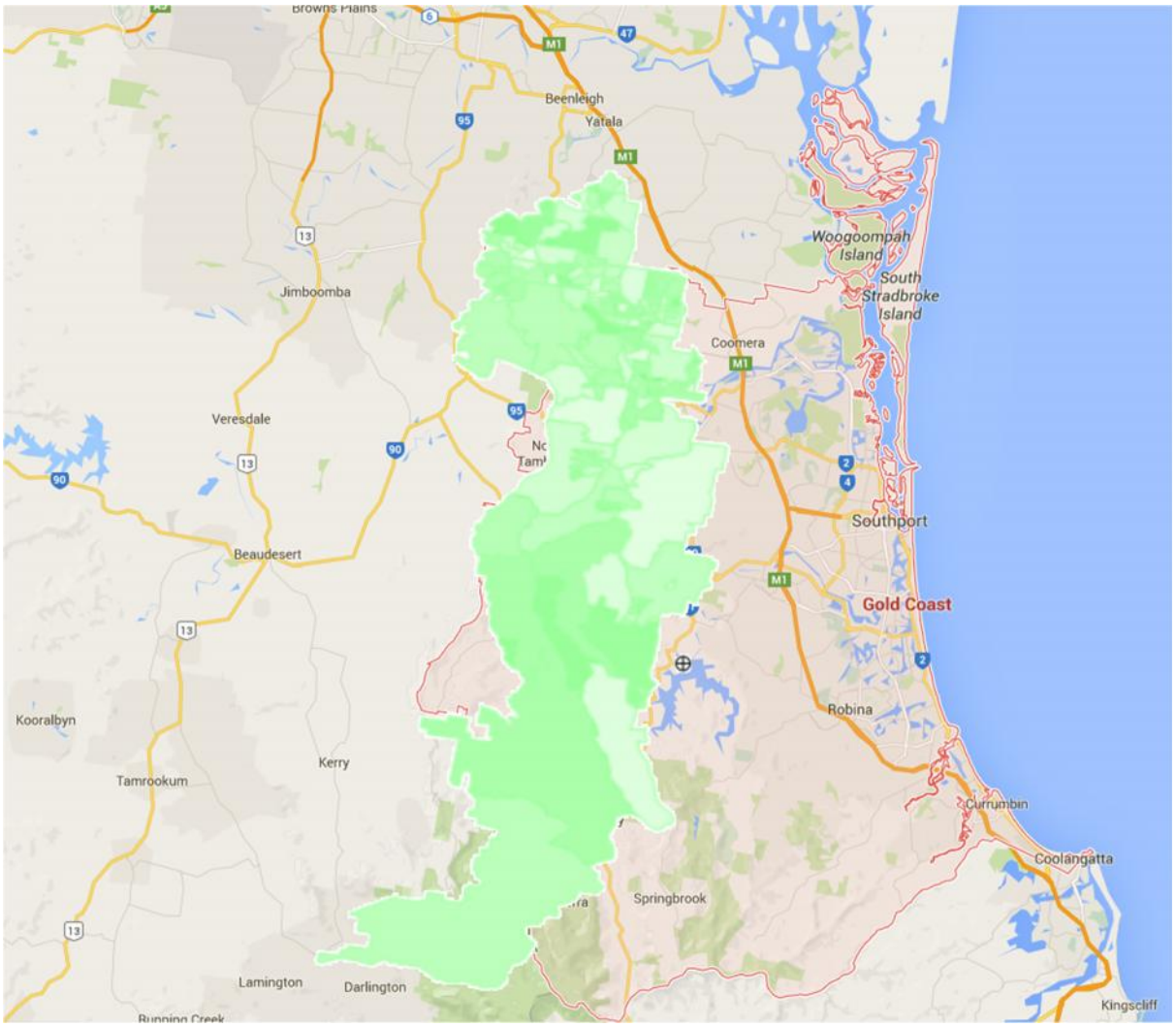
- An NBN staff member who has **full access** to the situation room can manually change the alert level of the zone

Note – Zone colours should **not** be altered when an alert is sent via the EWN GNIS system.

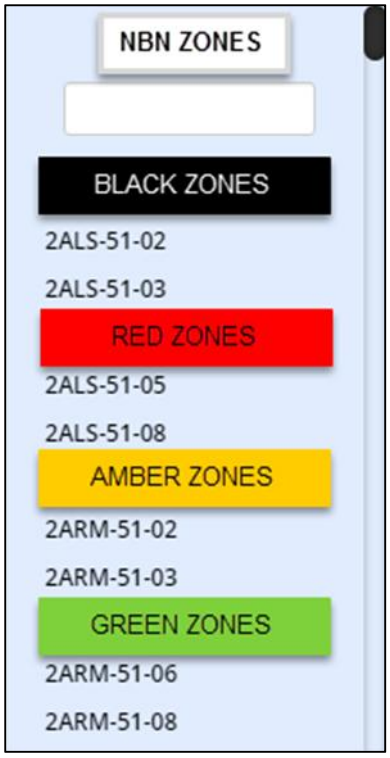
Whenever a zone changes Alert Colour Level, a notification advising of the change will be sent to the NBN staff registered to receive alerts for the specified zone.

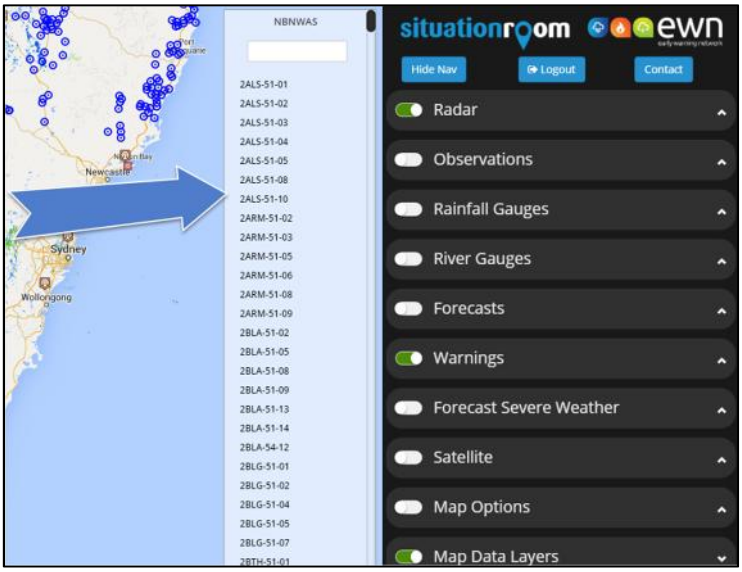
NBN zones should appear as a layer in the Situation Room e.g. As shown below (these are the weather district zones, but are used to show the concept only – NBN zones will be much smaller and more numerous)

In the example below we provide a screenshot showing a sub-set of the NBN zones that will appear within the situation room. Where a zone is not associated with an alert status the zone will appear green as shown in the screenshot below.



A list will be provided in the Situation Room of the Zones and their current status (Grouped by status, showing Black at the top, then Red, Amber and finally Green)[i]. A user will be able to zoom to the desired zone in the list by clicking on the name. (See image below)





Multiple zones will be able to have a threat level change activated by:

- A multi-selection by an NBN user who wishes to send a single alert for multiple zones in the same (or disparate) areas if necessary.

Zone de-activation and modification

User activation

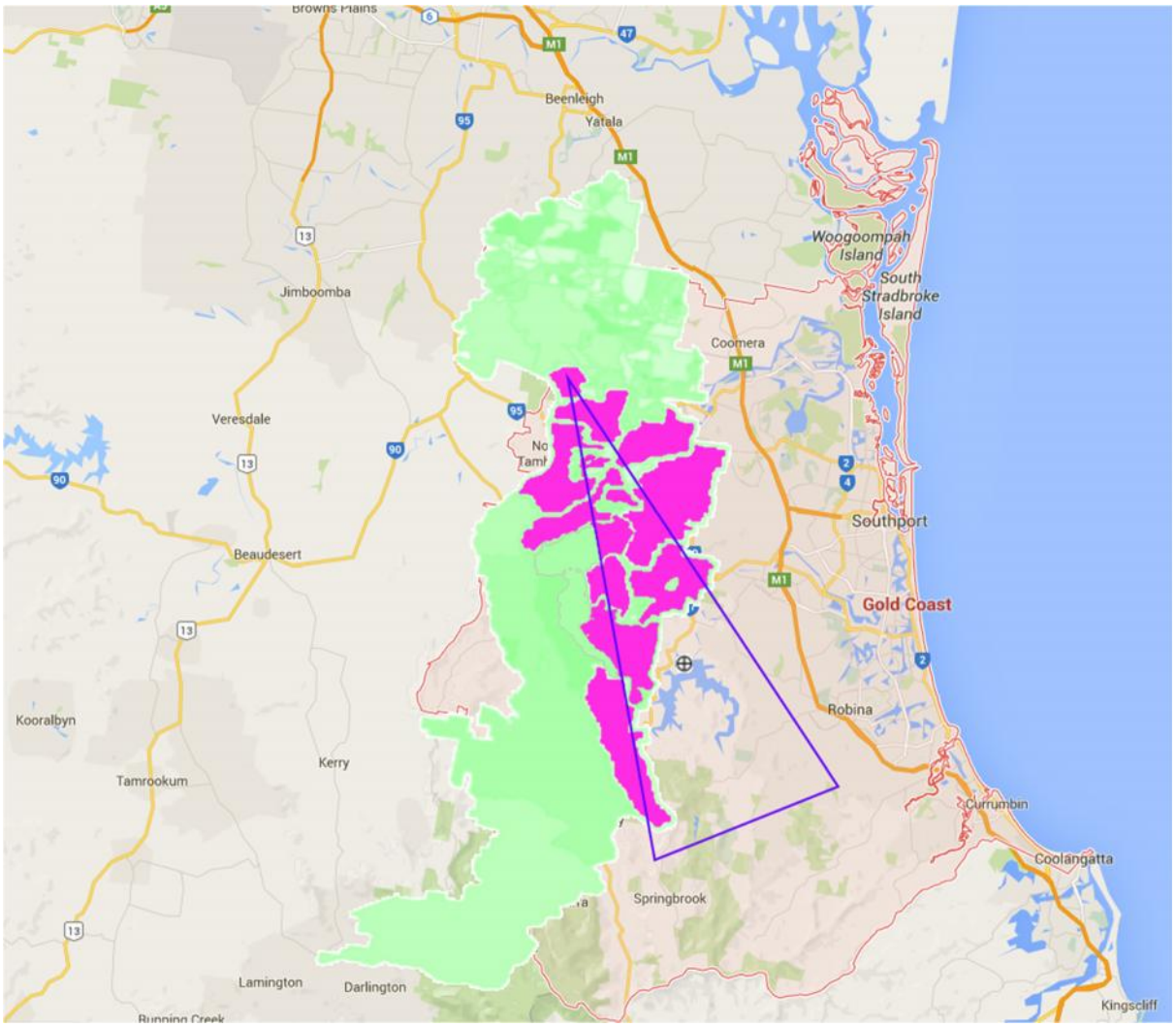
There will be two levels of users available within the admin panel:

1. Admin user who has the ability to change zones and update/send alerts
2. Non-admin user who can only view the situation room

An **authorised** NBN user who is deemed to have admin rights will be able to login to the situation room and then using their mouse indicate which zone or zones they would like to associate with the alert.

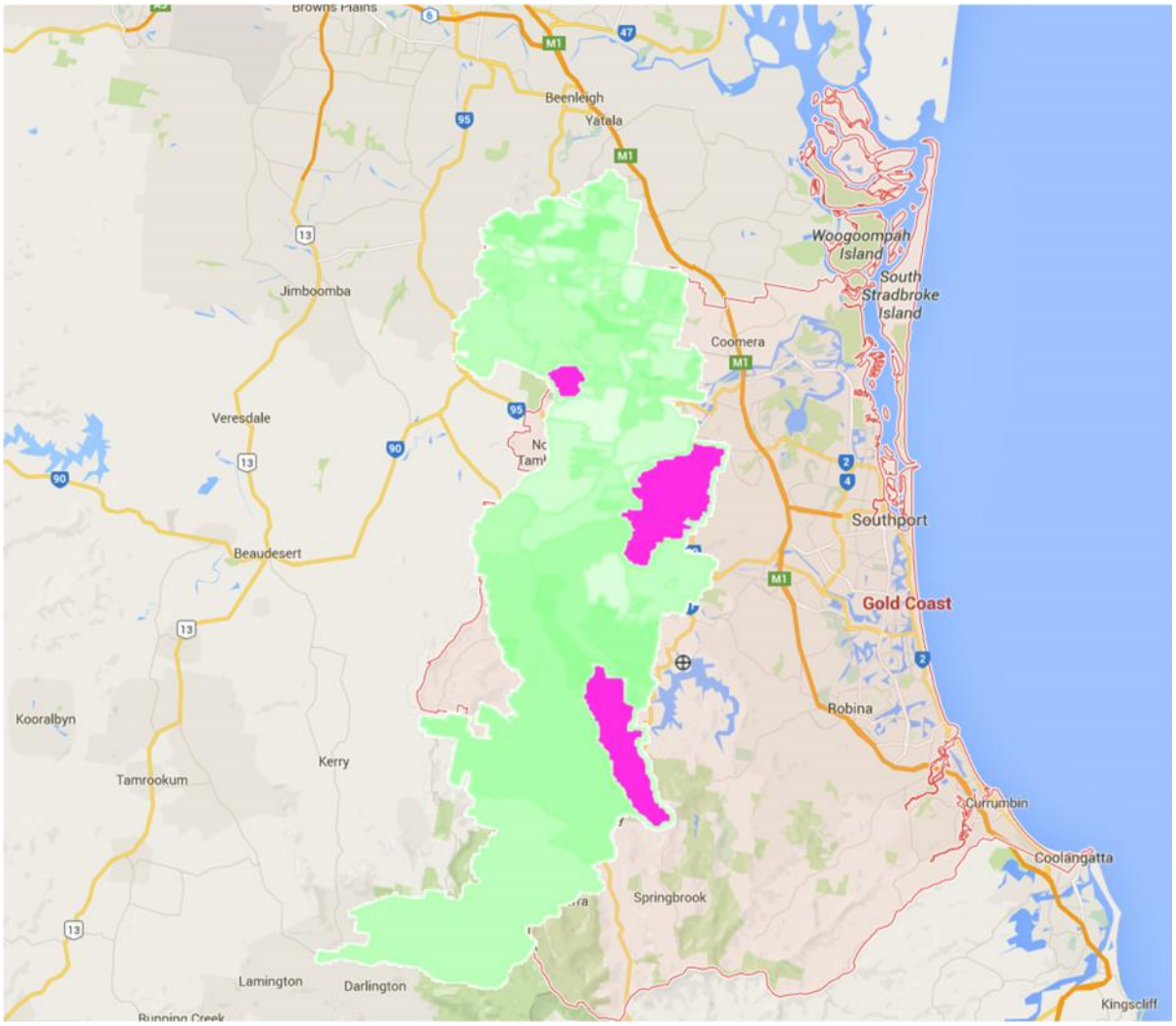
A user will be able to select zones either by individually selecting each individual zone or by drawing a polygon with the mouse – in the screenshot below the polygon is represented by the triangle.

Where the use draws a polygon to select multiple zones all zones that intercept with the polygon should be selected as shown in the screen shot below. All zones within the polygon should change colour to indicate that they have been selected.



When choosing zones individually (e.g. not using a polygon) clicking on the zone will make the zone change colour to indicate that the zone has been selected. Regardless of the method used to select zones an end user should also be able to de-select zones should they make a mistake when specifying a zone or zones.

In the screenshot below the user has selected three zones which have changed to purple indicating that these zones have been selected.

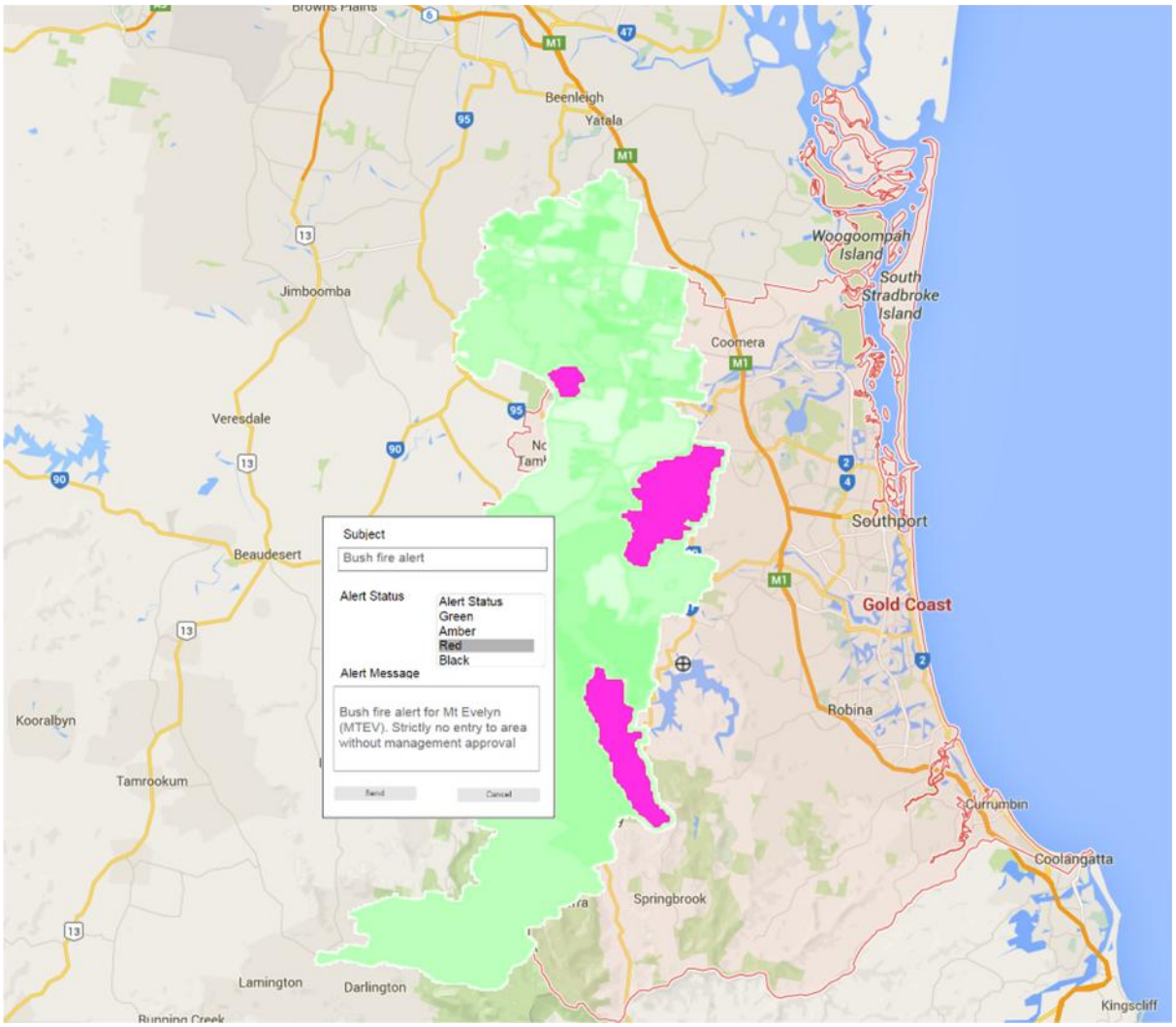


The authorised NBN user is then able to specify an alert to be sent to people contained within the specified zones by using the mouse to click on a “Send Alert” button within the user interface.

A dialogue box will appear allowing the user to enter details pertaining to the alert which will include:

- Alert subject
- Alert status – one of four statuses
  - Green
  - Amber
  - Red
  - Black
- The message that will be included in the alert which will also contain the unique name of zone(s) that are affected.

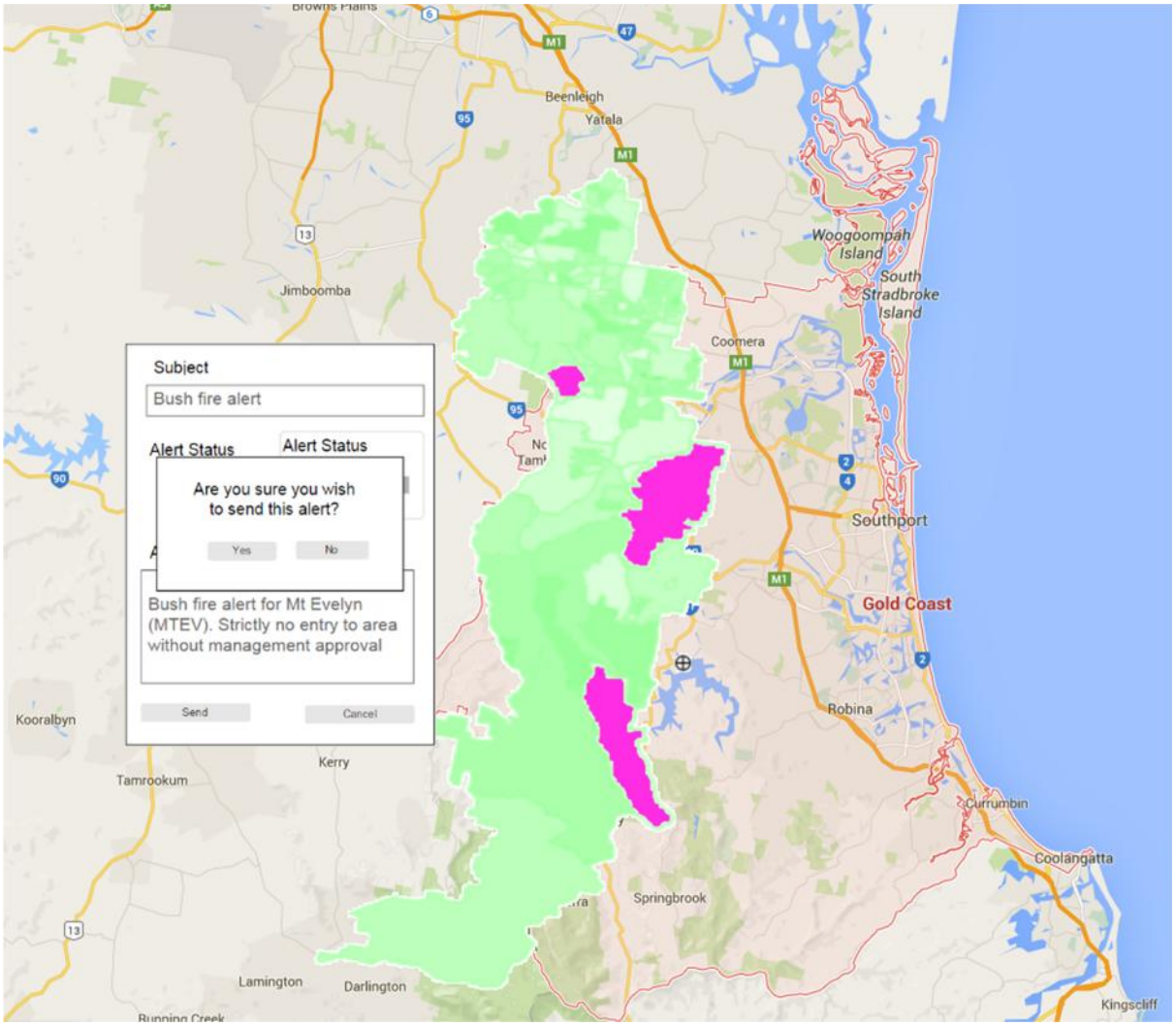
An example of the dialogue box that will be displayed to the end user is shown below



Within the dialogue box there will be two buttons:

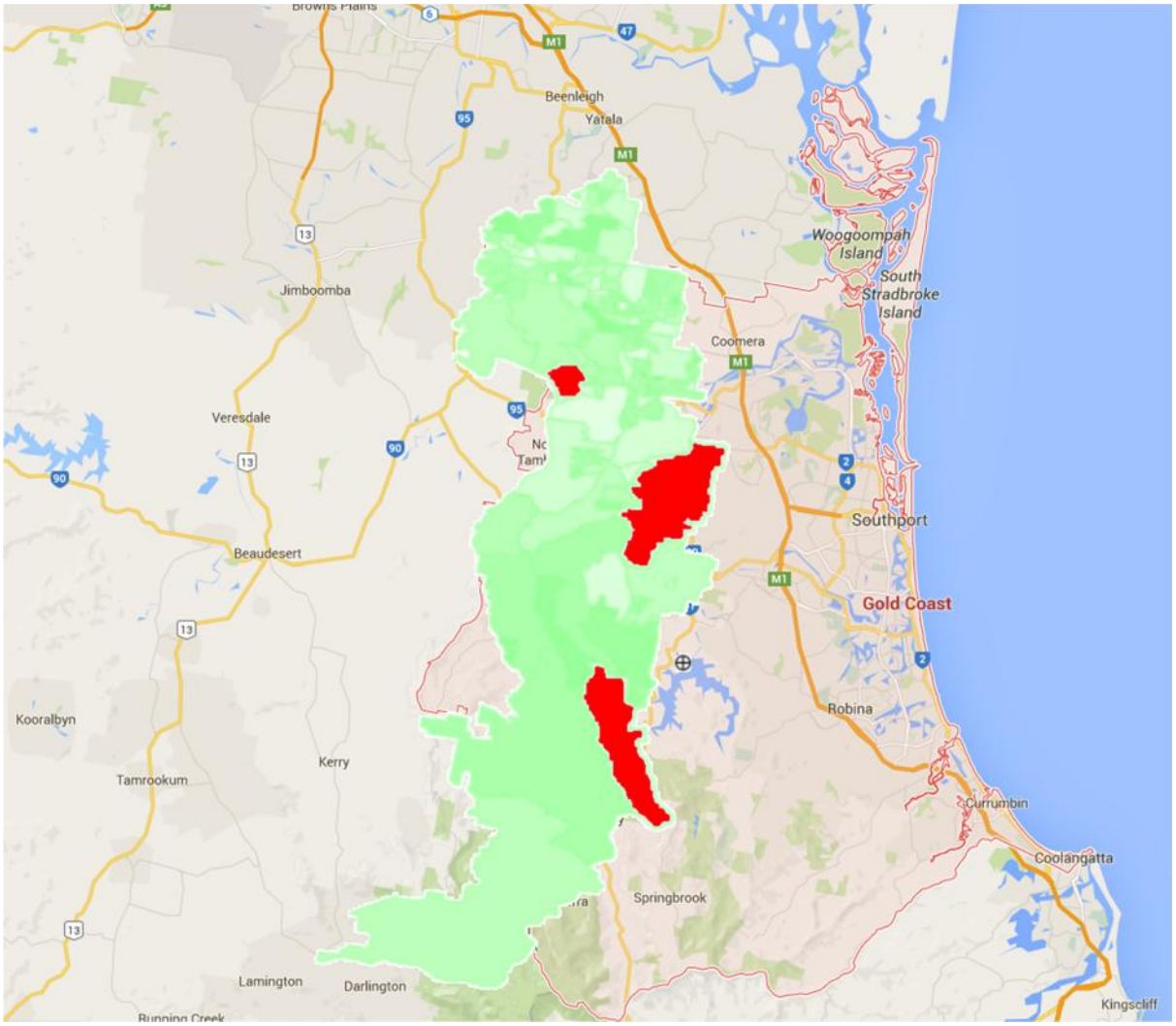
1. Send
2. Cancel

The send button when pressed will prompt the user to ensure that the do wish to queue the alerts for sending as shown in the screenshot below



NBN users will be able to de-activate (set back to Green) or modify the threat level of a zone manually by clicking on the zone (or zones) and choosing another threat level colour to be applied. This action will also offer the opportunity for the user to issue an alert to all users registered for that zone to advise of the new threat level status.

Once the alert has been queued for sending the zones that have been affected by the alert will change colour on the map to reflect the new status as shown in the screenshot below.



At this point alerts will be queued to be sent to those recipients who are registered for the affected areas and where the zones were changed via an Admin user the colours on the map will be updated as shown above.

An EWN alert affects a NBN zone

Where a EWN alert occurs within or overlaps an NBN zone or zones an alert will also be generated and scheduled to be sent to those people who are associated with the NBN zone(s).

The automatically generated alerts from the EWN system will contain the alert message details as defined by the Early Warning Network and also the custom message as entered by the NBN user previously.

An example of the alert content as generated by the Early Warning Network is below:

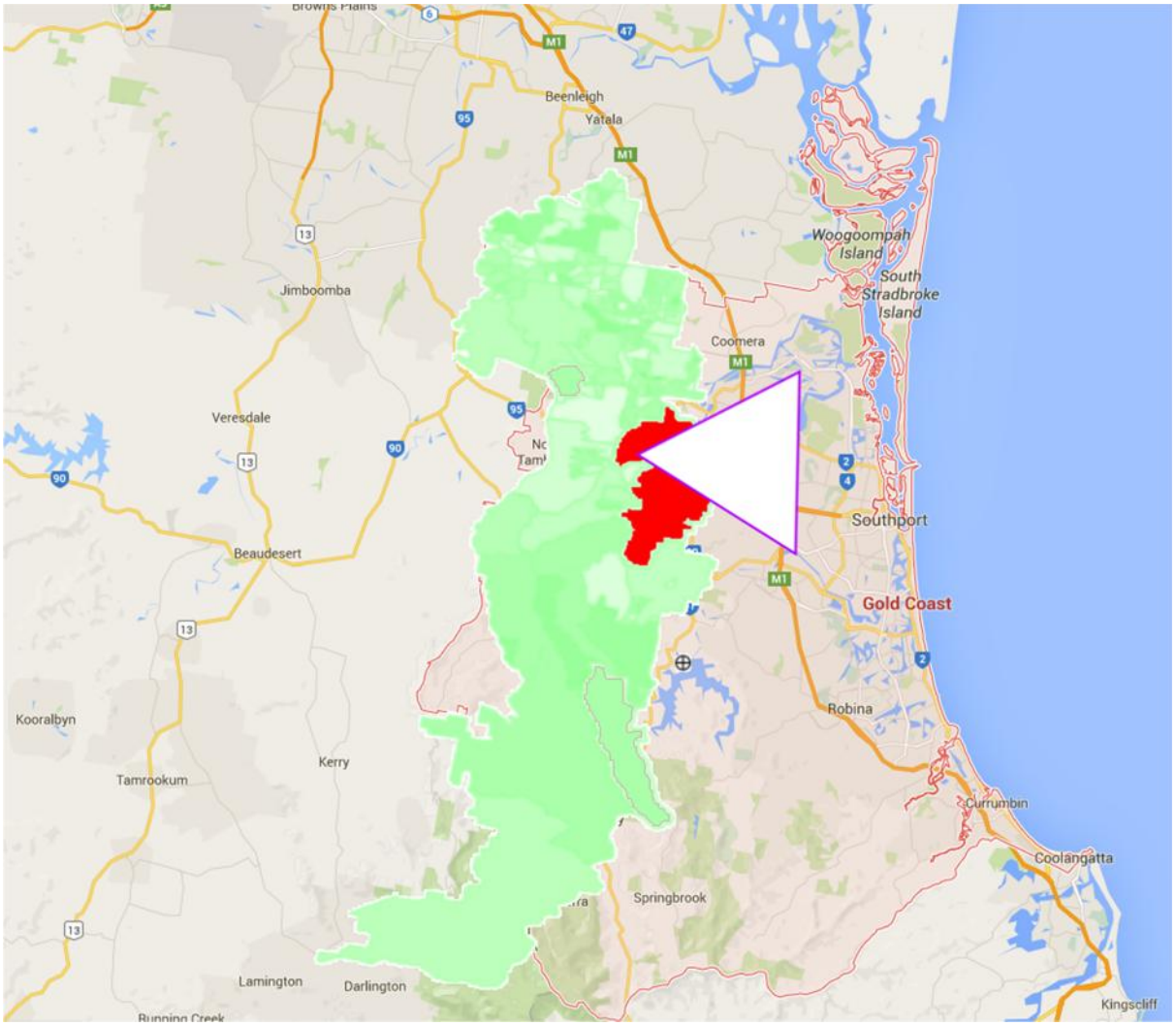
Alert status
Yellow

Subject
Southeast QLD Severe Thunderstorm Warning: Large Hail, Flash Flooding, Damaging Winds

Message
NSW Severe Thunderstorm; Large Hail, Flash Flooding, Damaging Winds possible next few hours in your area

Within the situation room the zones on the map will **not** change colour.

In the screenshot below there are two zones (marked in red) which have become intercepted by an Early Warning Network alert (represented by the triangle with the affected zones appearing red)



Zone Threat Level Definitions

The table below illustrates NBN's interpretation of Zone threat levels and associated colours. NBN will manually change Zones impacted by an EWN alert to a specific colour, according to their own threat level parameters. Below is an example of NBN Zone threat colours.

Zone	Zone Information
Green Zone	• Access as per normal BAU process
Amber Zone *Proceed with Caution*	• Decision to declare an Amber Zone is based on information from Emergency Services, field staff, contractors, other utilities. • Access with caution • Notes on ALL tickets for the area • All staff entering the area MUST keep in contact with their Manager. • If an individual finds an unsafe area they must escalate to their Manager • Normal work deployment process
Red Zone *Restricted Access to Needs Only Basis*	• Decision to declare a Red Zone is based on information from Emergency Services. • Authority to proceed given my State EMLO or EMLO deployed in Regional or Local ECC in consultation with Emergency Services. • Access granted for core network restoration on a needs basis only (or EMLO request). • Authority is only given to go in and complete approved task then get out again • Access and Route must be monitored • Individuals must be provided with "In & Out" paths that are known to be safe and with a specified time frame • Individuals must also assess the danger and request assistance from the EMLO if they determine the area is unsafe • If an Emergency Services escort is required is to be arranged via the EMLO • No deployment of general work is to occur
Black Zone *Danger – Keep Out*	• No Access for nbn field staff • Delivery partners to be advised • Delivery partners or contractors not to be requested to enter • No exceptions • No deployment of work • Usually declared under unique circumstances

EWN currently classifies Alert threat levels according to the following colours

Threat Level	Summary of Threat	Example Alert Types at this Threat Level	
RED	Extreme threats where damage or destruction to property has or will occur along with serious threats to personal safety.	- Category 4 or 5 Tropical Cyclones - Tsunami threats where land inundation is likely	- Bushfire Emergencies during extreme to catastrophic Fire Weather Warning days
AMBER	Heightened threats where damage or destruction to property is likely, along with risk to personal safety.	- Category 2 or 3 Tropical Cyclones - Severe Thunderstorm Warnings with destructive winds - Severe Weather Warnings with destructive winds	- Tsunami threats where land inundation is possible - Major Flood Warnings - Catastrophic Fire Weather Warning days - Bushfire Emergency Warning
YELLOW	Common threats which may pose a threat to property or personal safety.	- Category 1 Tropical Cyclones - Severe Thunderstorm Warnings - Severe Weather Warnings	- Flood Watches - Bushfire Watch and Act - all other alerts

Threat level mapping association

In this system, we would suggest that the two matrices be aligned as follows:

NBN Zone Threat Level	EWN Alert Threat Level
AMBER	YELLOW
RED	AMBER
BLACK	RED

User account management

Admin users within the control room who have full access should have ability to amend the alert recipient list.

Any changes to Admin user accounts (not alert recipients) will need to be processed manually by the Early Warning Network and must first be authorised by Phil Astle or Cameron Scott from NBN.

Alert recipients should not have the ability to unsubscribe directly with EWN. All changes to alert recipients list should go via NBN as per the paragraph below.

Self-serving user lists

NBN Admin users will have the ability to manage alert users who receive alerts and those users who will have access to alerts via the Control Room. As actual users who receive alerts are stored in the EWN GNIS system extra development between the Control Room and the GNIS system will need to be developed by EWN

Reporting

Draft SLA report attached for comment by EWN.

Sla Summary report

Measure	Result
Situation Room Availability	Xx% (actual uptime for the previous month)
Net Zone Alert Recipients	Xxx (overall number of zone alert recipients at the end of the month)

Measure	Result
Alert Sending Delay	Xx – SMS (maximum duration between alert being set & alert dispatch) Yy – Email (maximum duration between alert being set & alert dispatch)
Total Zone Alerts Sent	Total number of zone alerts sent for the month
Failed Alert Attempts	Xx – SMS (how many SMS alert attempts failed) Yy – Email (how many email alert attempts failed)
Callouts	Things EWN would like to bring to **NBN**'s attention (i.e. reasons SLA was not met, unplanned outages that occurred) – This would be a free text field mainly used for two-way communication between NBN and EWN

Usage

Measure	Result
Gross Zone Alert Recipients	+yyy Users added (total users added during the month) -zzz Users removed (total users removed during the month)
Amber Zone Alerts Sent	Xxx (total number of zone alerts sent for an Amber Zone)
Red Zone Alerts Sent	Yyy (total number of zone alerts sent for an Red Zone)
Black Zone Alerts Sent	Zzz (total number of zone alerts sent for an Black Zone)

Upcoming Outages

Outage Date / Time	Outage Description
Outage on xx/xx/xxxx @ x:xx	Outage details

Failed Alert Recipients

Recipient	Method	# Failed Attempts
XXXX XXXXXX	Mobile	5 (number of alert attempts to this device that failed)
XXXX@YYYY.YYY	Email	3 (number of alert attempts to this device that failed)

History report

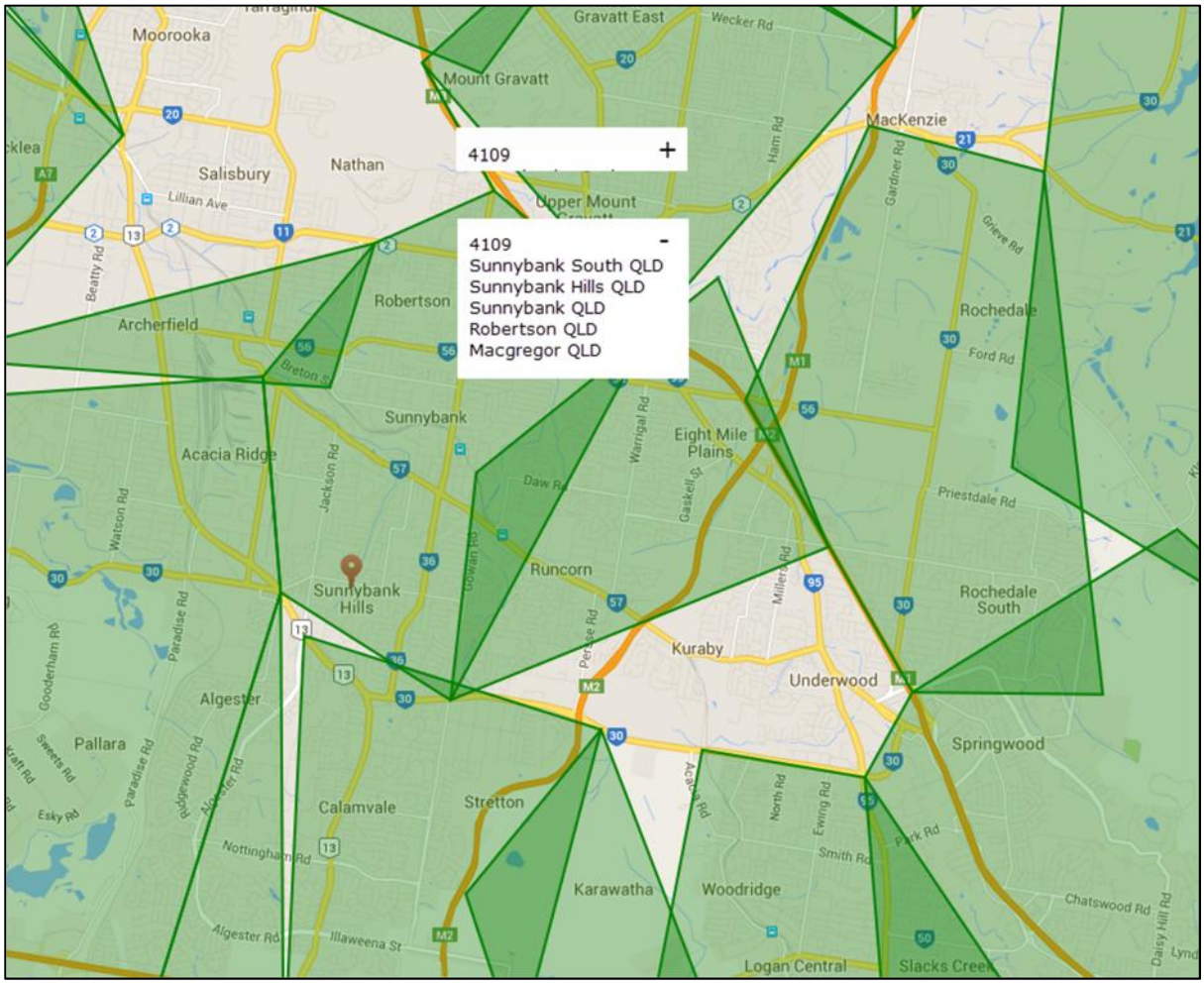
Full reporting functionality will be available through the EWN GNIS system and can be run and sent on a monthly basis.

NBN Zone Management Solution – Additional enhancements request 4/8/16[ii]

Following testing of the NBN Zone Management solution by the client, NBN Co have requested EWN to provide a scope and quote for additional enhancements to the solution as detailed below:

1. Have the suburb name (s) appear next to the mouse pointer when hovering over a zone on the map (see picture below). This will assist NBN in identifying if this zone contains the Suburb they wish to alert for. **Suburb names are the primary identifier for the location of an alert by NBN.**

   Each zone must have a specified SHORT and DESCRIPTIVE name. Where the zone aligns with Postcode Data, the SHORT name will be the postcode number and the DESCRIPTIVE name will be all the suburbs associated with that postcode.



2. Create a separate floating window once a user selects a zone (s). Populate this with the suburb name(s) of the zones that are selected (names should be added/removed as the operator selects/deselects zones). Move the “Change Zone” button to this window. See pictures below)

Image showing 2 x zones selected, 4109 and 4113. All the suburb names for each zone are to display. The box will need to expand in width if necessary to allow for each suburb name to be on one line only. NB. This window is to float and should be able to be moved around the window by clicking and dragging with the mouse.

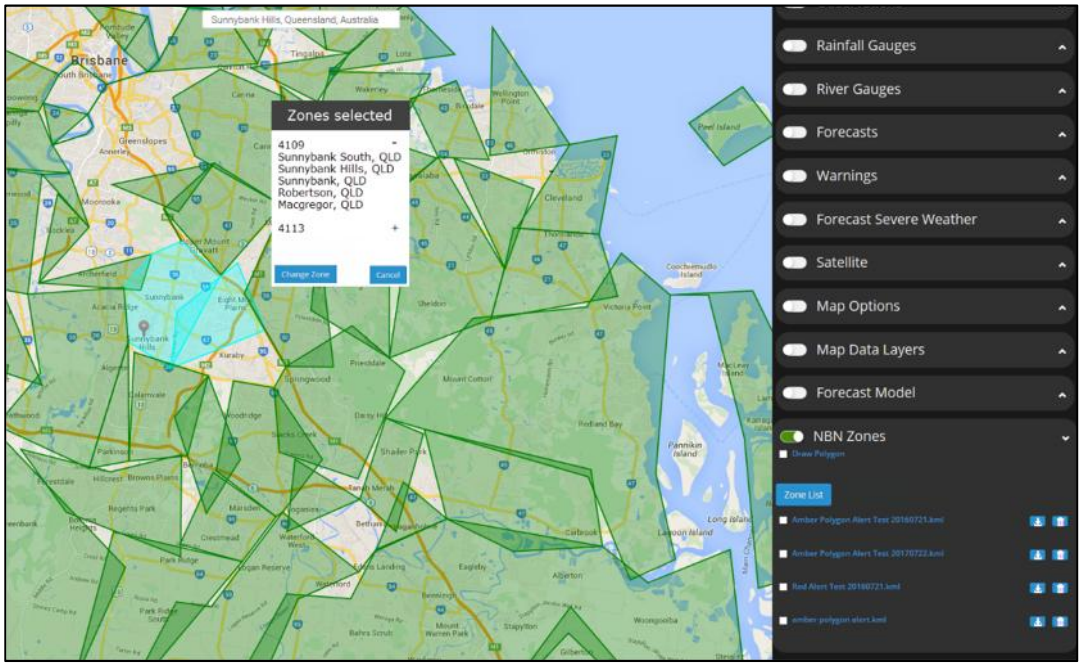
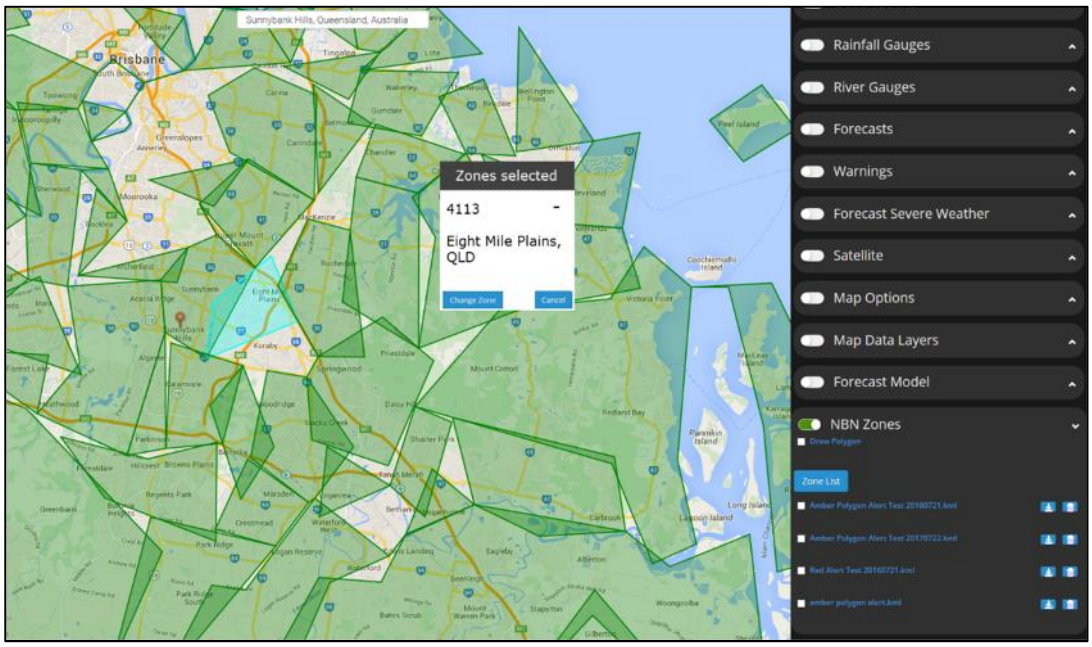


Image showing the change to the text box once one of the zones is deselected (4109) in this case.



Once the user has verified that the zones are correct to send an alert to, they will click on the "change Zone" button to bring up the "Alert Status" screen to send the alert. NOTE that the "Change Zone" button is no longer in the right hand menu next to "Zone List".

3. Re-purpose the **"NBN Zones"** window as follows:
    a. This window should be a floating window and be able to be moved around the map window by clicking and dragging with the mouse.
    b. This window should display information at an alert level (so if one alert is sent for multiple zones, there should only be one entry in the list) in an expandable and collapsible list.
    c. Instead of displaying the postcode, which is the current zone identifier, display the "Subject" line of the alert in the list. (See example below where the subject of the alert input for the Red Zone was "Bushfire Carbrook, QLD")
    d. Only display information in the list for amber, red and black alerts. No green zones are required to be displayed in the list.
    e. If a user clicks on the alert name in the list, this action should select all the zones associated with that alert (could be one or more) and spawn the floating window mentioned in (2) above to enable the user to quickly change the alert status of one or all of the zones.
    f. Allow for collapsing\expanding details of the zones (short + descriptive names) affected by an alert. Use a plus\minus control next to the alert name
    g. Provide a master collapse\expand control for the NBN Zones list. (use same code as used for existing rainfall\river gauge legends)

Image below showing the Alert Subject (3.C) to be shown in the NBN Zones list. (next image)

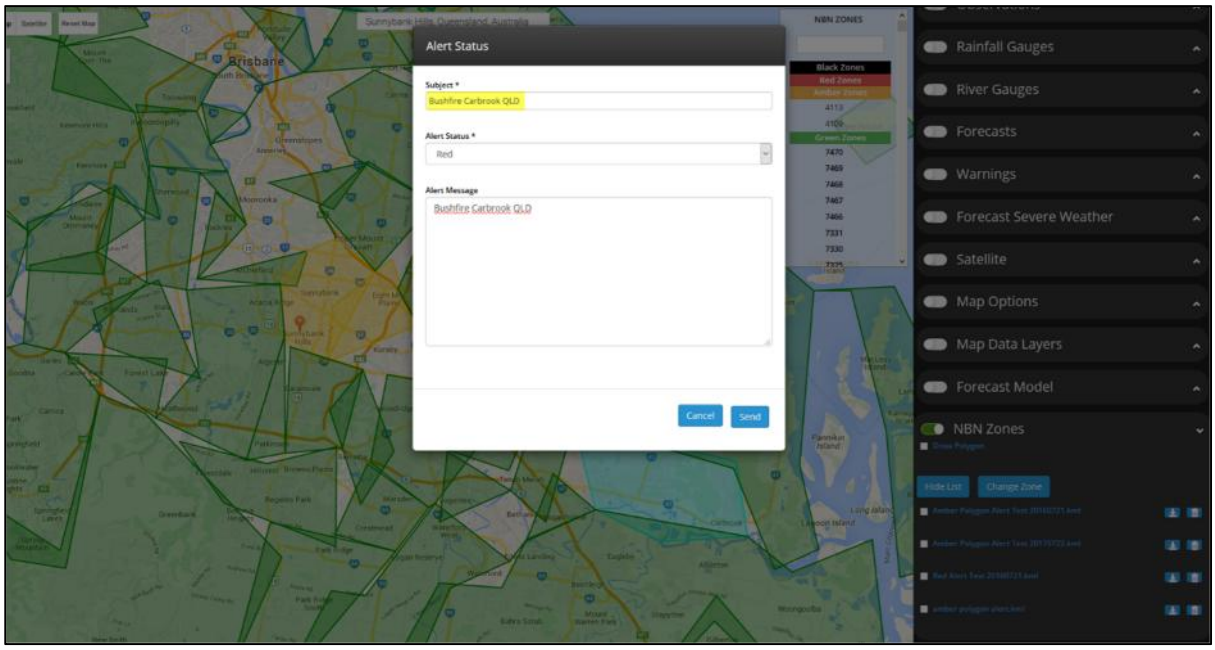


Image below showing the new design “NBN ZONES” list with the postcodes replaced by the Alert Subject. If the user clicks on the name of the RED alert in the list, this will cause the “Zones Selected” window (see next image below) to display, listing the current postcode and suburbs (4130 Carbrook and Cornubia) included in the alert and will also select the zones, ready for a change of alert status.

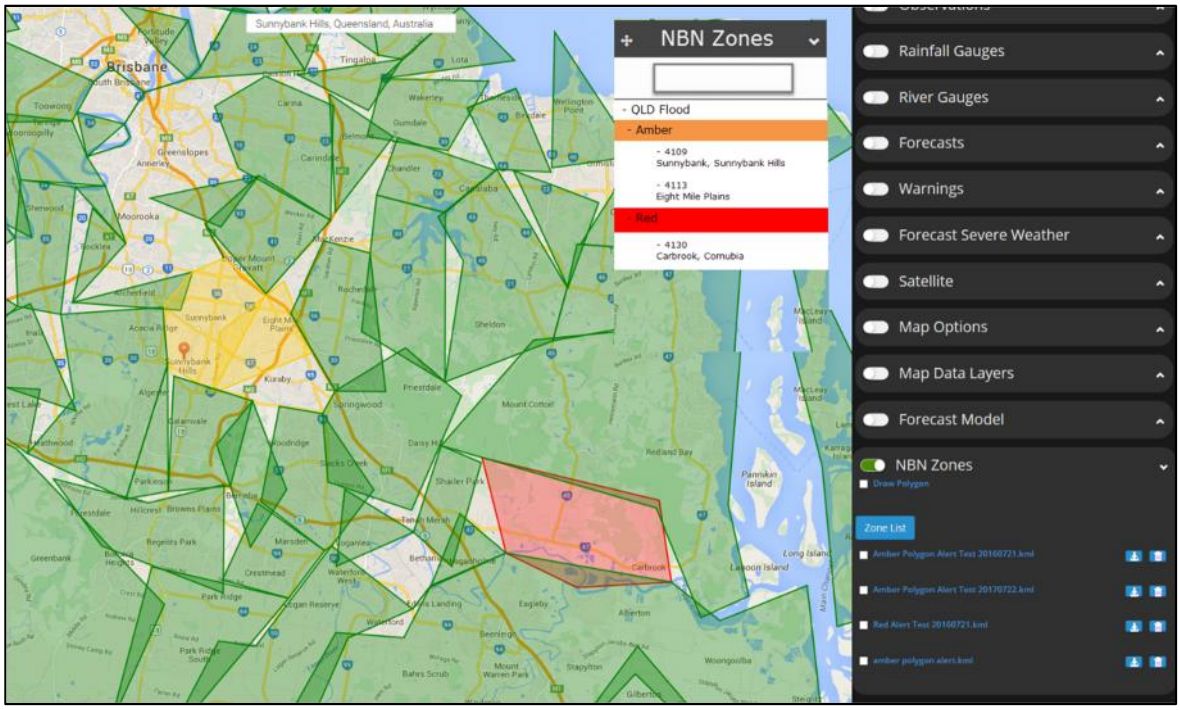
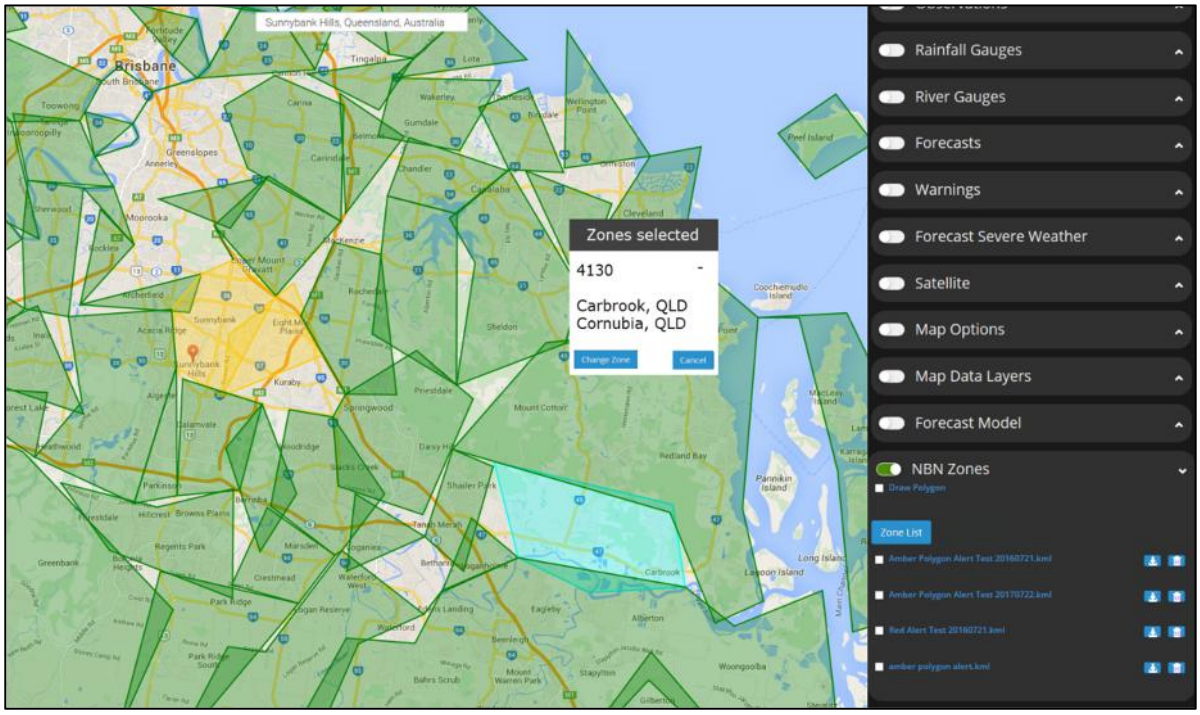


Image showing new “Zones selected” window appearing after the user clicked on the Red Alert “Bushfire Carbrook, QLD” in the NBN ZONES list above. Note the zone is selected and ready to alert again, using the “Change Zone” button in the window.

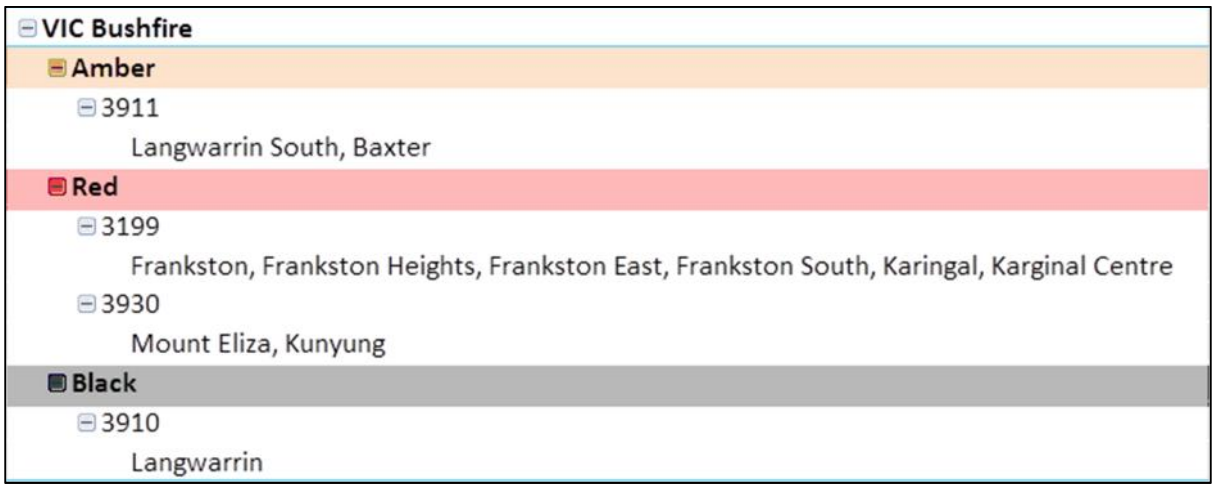


To further demonstrate the functionality of the NBN Zones List, refer to the example data below:

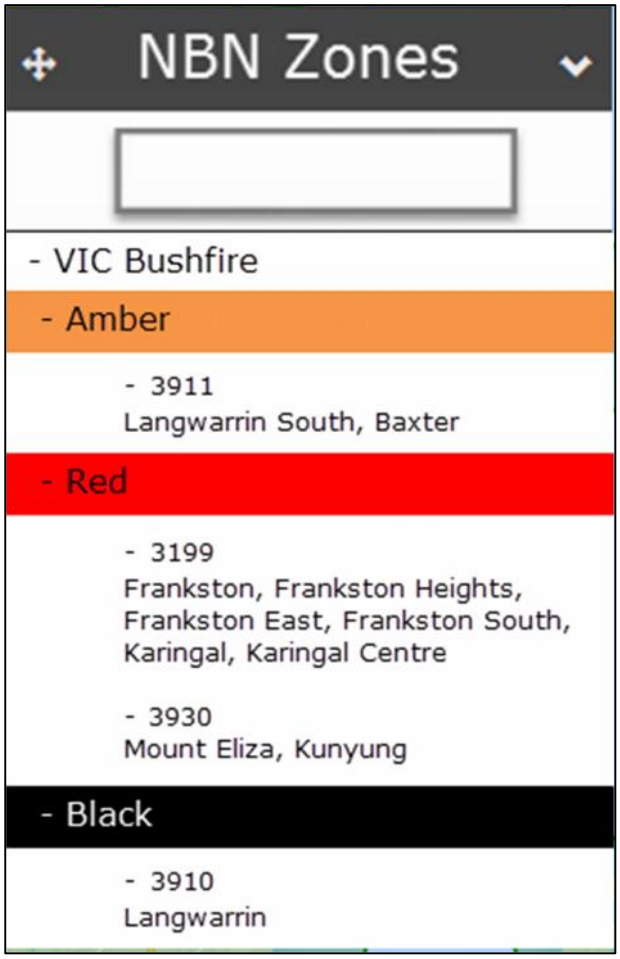
Zone Short Name	Zone Long Name	Zone Status	Alert Subject	Alert Body
3199	Frankston, Frankston Heights, Frankston East, Frankston South, Karingal, Karingal Centre	Red	VIC Bushfire	Bushfire in Victoria affecting SE Melbourne
3190	Highett	Green		
3930	Mount Eliza, Kunyung	Red	VIC Bushfire	Bushfire in Victoria affecting SE Melbourne
3911	Langwarrin South, Baxter	Amber	VIC Bushfire	Bushfire in Victoria affecting SE Melbourne, be aware
3912	Somerville, Pearcedale	Green		
3910	Langwarrin	Amber	VIC Bushfire	Bushfire in Victoria affecting SE Melbourne, be aware

The data in the table above should display (functionally) as below in the NBN Zones list:

Note the expand\collapse controls should be available at top level (not shown), individual alert subject level, zone status level and zone short & long name (combined in this view)



Mockup of NBN Zones list for the Situation Room:



4. Users are to receive all alerts for zones in the same registered state as they are registered in (i.e. user registered as a NSW address will receive alerts for ALL NSW Zones)

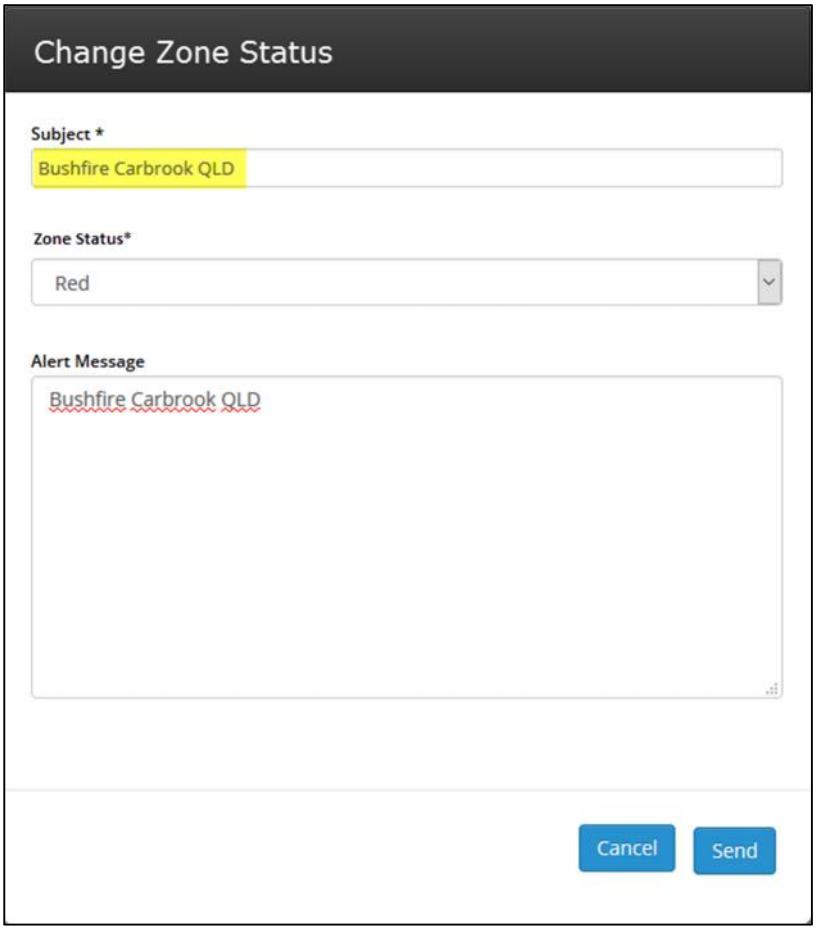
Currently the design is that the postcode polygons are passed via the API to be used to identify a user's specific address inside that polygon. This procedure has been broadened to allow that every user (regardless of their actual address inside a state boundary) will receive every alert (zone change) issued for that state.

NOTES – it is proposed to satisfy this request by having the API pass the state information (e.g. QLD, VIC, NSW) for each alert via the API to the GNIS. A separate polygon for each state will need to be implemented to make this work.

5. **Alert Status** window requires the following enhancements:

To support keeping the alert subject consistent we'd request as additional behaviours in the change zone status window:

(a) If status of the selected zone(s) is green: alert subject should be a free text field which provides a drop-down option (drop down should be populated with existing non-green alert subjects).
(b) If status of the selected zone(s) is not-green: alert subject should default to the previous subject sent for that zone / user should have option to manually amend it
(c) If multiple zones are selected with different status – behaviour should default to (a)
(d) Alert subjects for green zones should not be tracked.
(e) Make this window a floating window which can be moved around the screen by clicking and dragging with the mouse.
(f) Change name to "Zone Status"



[i] Similar to the list function already provided for NBNWAS and NBNFAS data layers.

[ii] Note that some of these enhancements supersede software already developed as per the original specification for NBN Co, (for example the Zone List functionality).