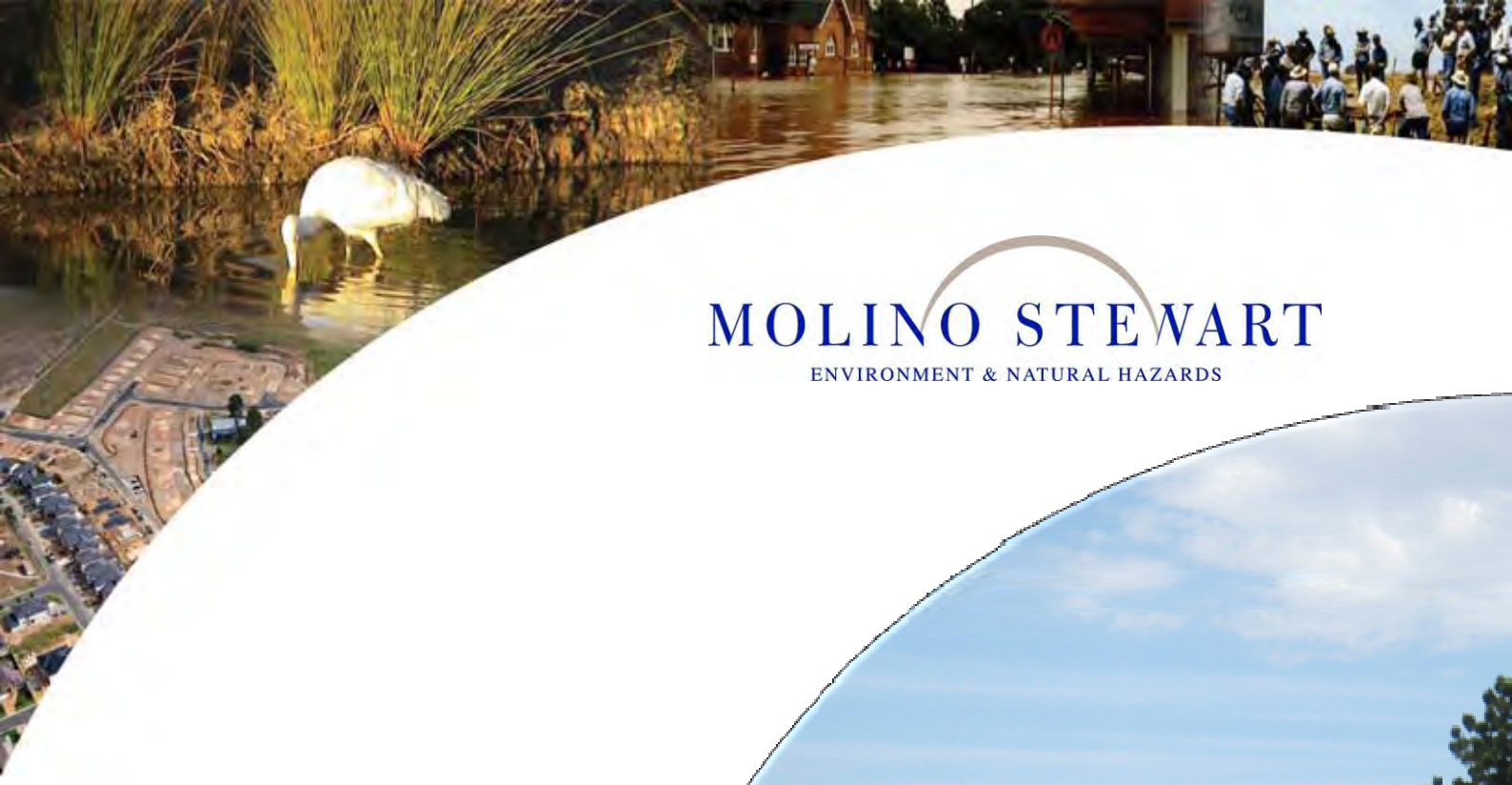

MOLINO STEWART

ENVIRONMENT & NATURAL HAZARDS

North Byron Parklands
(Billinudgel Property Pty Ltd)

North Byron Parklands

Flood Risk Management Plan

MOLINO STEWART
ENVIRONMENT & NATURAL HAZARDS

North Byron Parklands

FLOOD RISK MANAGEMENT PLAN

for

North Byron Parklands (Billinudgel Property Pty Ltd)

by

Molino Stewart Pty Ltd
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JUNE 2011

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DOCUMENT APPROVAL

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1 BACKGROUND

The need for a purpose built cultural event site has been widely recognised in Byron Shire for the past decade. While creative industries and cultural tourism, in the form of festivals and events, strongly contribute to employment and the local economy, no dedicated, multi-use site for hosting large events is available in the Shire. The necessity for a purpose built, sustainable venue to host events within the Shire has recently increased due to the traditional leased site in Byron Bay not being available in the future.

The North Byron Parklands (Parklands) project will provide a purpose built sustainable cultural arts and music venue hosting a range of events such as music festivals, field days, jamborees, gymkhanas and conferences, together with smaller events such as outdoor movies and a wide range of community events. For most of the time the property will continue to operate as a farm.

An application has been made under Part 3A of the Environmental Planning and Assessment Act to develop the site to host several events each year, ranging in size from 300 people to Splendour in the Grass which is expected to grow to 50,000 people. This would require the construction of permanent infrastructure such as roads, carparking, drainage, electricity supplies, water supplies and sewerage systems as well as administration and accommodation facilities. During events, temporary facilities would also be brought in and set up in accordance with the type and size of event. These would include additional water and sanitation, stage, sound and lighting equipment, emergency power and additional shelter.

Parts of the site can flood and accordingly, the Department of Planning and Infrastructure has requested that a comprehensive Flood Evacuation Plan be prepared by a suitably qualified specialist in conjunction with local emergency services.

It must demonstrate that:

1. The site can be safely evacuated during events up to and including a Probable Maximum Flood (PMF) event with no unacceptable risk to patrons or staff. This will require careful assessment of the flood characteristics occurring during a local catchment PMF and regional PMF.
2. Flood warning times and rate of rise of flood waters during a PMF event both in the northern and southern portions of the site.
3. Potential hazards along evacuation routes, including any regional evacuation routes.
4. How event organisers will have access to reliable information that will enable them to effectively implement the evacuation.
5. How event organisers will carry out the evacuation and advise patrons of the correct course of action.
6. How event patrons will be prevented from entering high hazard areas, for example, going to collect their car.
7. How event organisers will arrange the safe evacuation of patrons under trying conditions such as heavy rainfall, storm events, and possibly at night.
8. How potential medical emergencies will be dealt with during an evacuation.
9. How potentially large numbers of intoxicated patrons would be managed.

Following amendment of the application, the proposal is to limit use of the site for the first five years to three events per year up to a maximum of 30,000 patrons (60% capacity).

Any further capacity increases in excess of 60% will only occur based on an assessment of the operational performance of the development against a series of Parklands Environmental Health and Safety Standards (defined in the Management Manual). The development will demonstrate that it has complied with or bettered these standards before a capacity increase is considered.

This Flood Risk Management Plan sets out how the venue and event managers will prepare for potential flooding and respond to actual floods on the site.

2 THE VENUE AND EVENTS

2.1 SITE DESCRIPTION

2.1.1 Locality

The project site is located on the eastern side of the Pacific Highway in the north east corner of Byron Shire, NSW. The site is about 20 minutes drive north of Byron Bay and approximately 25 minutes drive south of Coolangatta. The site locality is shown in Figure 1.

The land is located adjacent to the Pacific Highway, the national highway, and Tweed Valley Way, the regional level road connecting the north of Byron Shire to Murwillumbah within the Tweed Valley. The site entrance is located with convenient access to the Yelgun interchange of the Pacific Highway.

The site is approximately 258 hectares in size of which 93 hectares will be utilised for events including parking, camping, staging, etc. The site is composed of four major zones: proposed DECC nature reserve extensions, habitat areas, managed parklands and non-habitat areas, which will be used for events and conferences.

The Parklands site is located both to the north and south of Jones Road. The property is bounded on its western margin by the Tweed Valley Way and Billinudgel Nature Reserve (BNR) adjoins to the south and centrally within the site.

2.1.2 Site Layout

The general site layout is shown in Figure 2 and comprises an event area north of Jones Road and a parking area and main entry south of Jones Road.

a) Event Areas

The 'Event Area' comprises an area of the northern part of the site. The 'Event Area' footprint contains the public (performance) area, backstage area, patron camping, patron car parking, staff camping and parking. A resource centre and the bus terminus are also located within the event area.

Large parts of this area north of Jones Rd have been labelled as event area to allow for different uses and layouts. Therefore, within this area, there could be a mix of camping, camping and parking, parking, staging, market stalls, restaurants, etc.

This event areas layout will change with different sized events. Major events will include a standard layout where the performance area will be entirely fenced (1.8m high x 2.4 metre wide temporary chain fencing panels that slot into concrete footings and are secured at the top by way of a bracket). The outer perimeter of the camping areas will also be fenced.

b) Parking

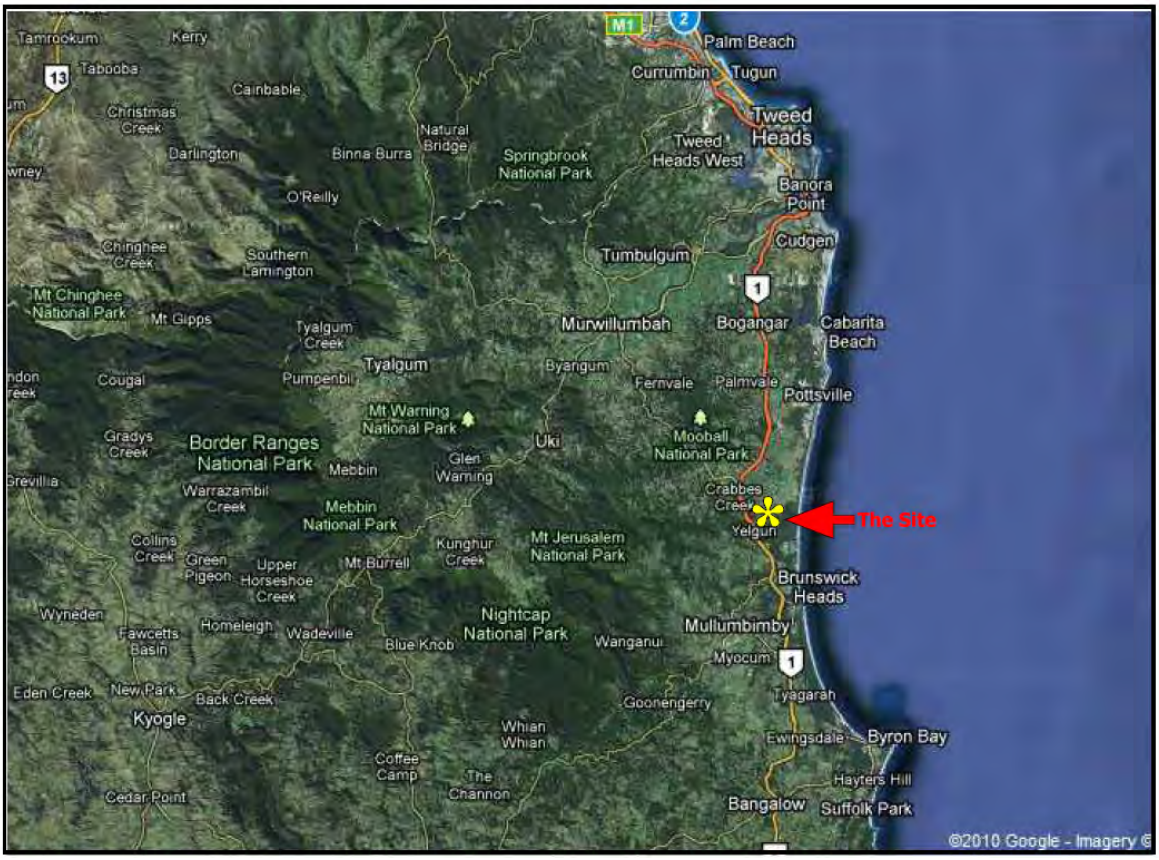
The southern car park is defined in Figure 2 on the event area map and would largely service day visitors to larger events who would be driving their personal vehicles to and from the site each day.

The northern parking is for campers who may park their car adjacent to their allocated camping area (i.e. their car next to their tent).

The central car park is located to the east of the bus interchange, north of Jones Road. It is envisaged that this area will be used as parking for disabled persons, staff parking, coaches, media, etc. depending on the type and scale of event.

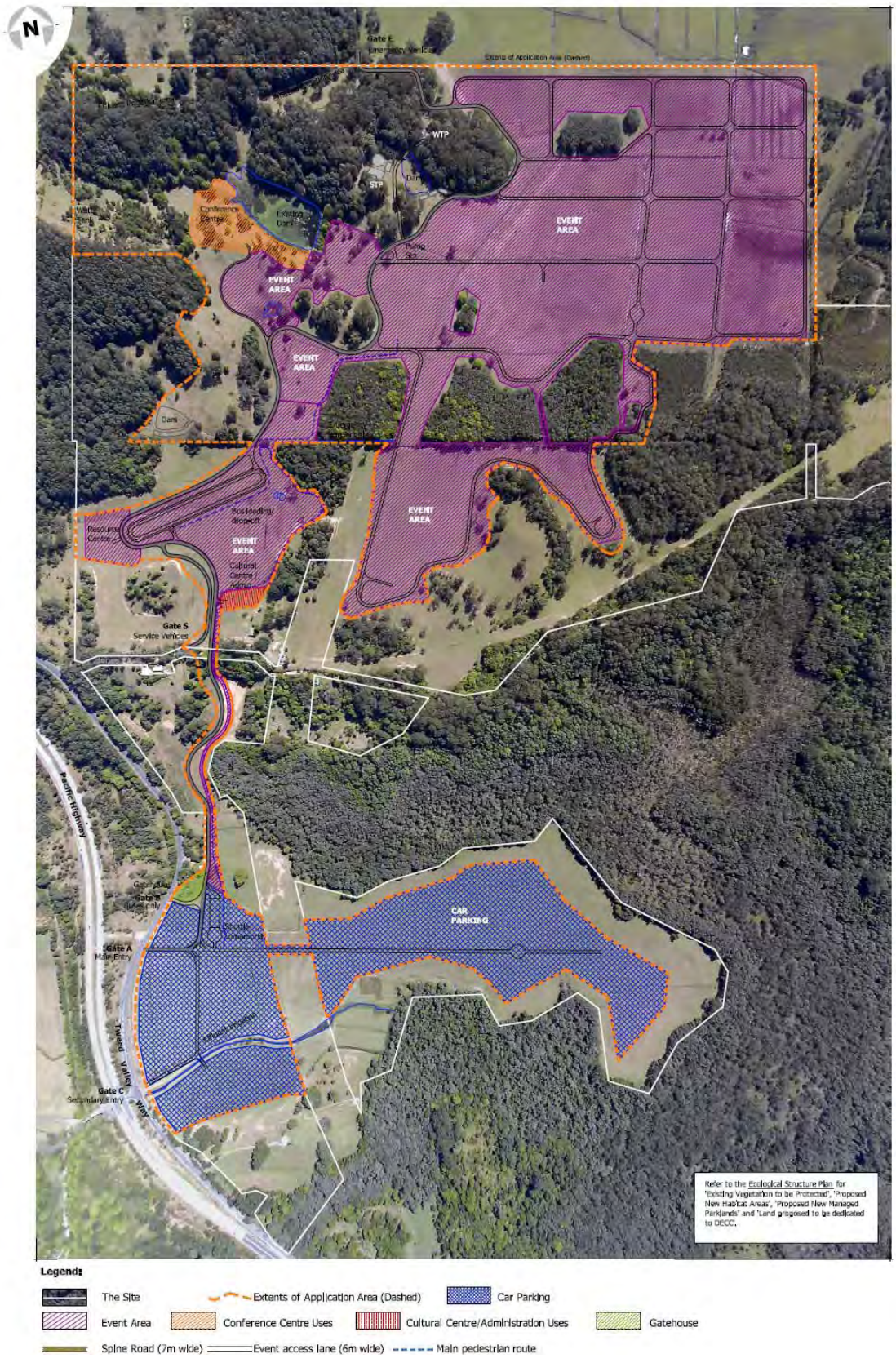
For an event of 30,000 which is proposed for the initial event, this central area east of the bus interchange will most likely be utilised for some form of parking.

Figure 1: Site Locality



Source: Google, 2011

Figure 2: General Site Layout



Source: Connelly, 2010

2.1.3 Topography and Drainage

Hydrologically, the site is split into two sections, divided by the east-west ridge along which Jones Road runs.

To the north of Jones Road are the proposed main entertainment area and camping grounds as well as future developments such as the conference centre. The majority of the northern area is within the Crabbes Creek floodplain, which itself is part of the Mooball Creek catchment.

To the south of Jones Road is a proposed car parking area, patron registration facilities and shuttle bus zone. This southern area is located on the Billinudgel and Yelgun Creek floodplain, which is a tributary of Marshals Creek.

The bulk of the land is in the 0 – 20% slope range. Some of the foot slopes are in the 20 – 33% range and steeply-sloping land occurs only in a very small part of the site.

2.2 PROPOSED EVENTS

Events involve the temporary gathering of people for cultural purposes. Envisaged events include festivals, music concerts, jamborees, gymkhanas, field days, art exhibitions and installations; movies or performances for orchestras, opera and the like.

2.2.1 Size of events

The originally lodged application sought approval for event usage, of a variety of event sizes, for a strictly limited number of occurrences annually. Events were defined in the following categories:

- Minor Event – less than 300 patrons
- Small Event – 300 patrons to 3,000 patrons
- Moderate Event – 3,000 patrons to 10,000 patrons
- Major Event – greater than 10,000 patrons.

Events with greater than 3,000 patrons are described within this report in the context of their percentage of an overall patron capacity of 50,000 persons. The Preferred Project application which is currently being sought is for a maximum capacity of 30,000 patrons – i.e. 60% capacity in the initial years. Therefore, this management plan only examines a maximum 60% capacity scenario.

Any further capacity increases in excess of 60% will only be carried out at a later stage based on an assessment of the operational performance of the development against a series of Parklands Environmental Health and Safety Standards (defined in the Management Manual). The development will demonstrate that it has complied with or bettered these standards before a capacity increase is considered.

Upon 3A approval for the first five years, it is proposed to organise and hold three events annually. This includes Splendour in the Grass – held in late July/early August – 30,000 patrons over 3 days (approximately 60% campers and 40% day patrons). Event Two would occur in October – 25,000 patrons over 2 days (approximately 50% camping and 50% day patrons). Event Three is proposed for January – 20,000 patrons over 2 days (approximately 50% camping and 50% day patrons).

For the Splendour in the Grass event (60% capacity) there is expected to be an additional 1,800 people on the site including staff members, performers, guests and associated personnel. This means that the maximum number of people on site would be approximately 31,800.

Some staff and suppliers camp on site during bump in and patrons who are camping are encouraged to arrive a few days before the event begins. This means that a few days before the event there can be thousands of people and vehicles already on the site.

By operating limited events (i.e. up to 60% capacity) in the first five years, the natural tolerances for the site will be made clearer and future planning can then be decided.

2.2.2 Traffic and Parking Volumes

The number of cars moving to and from the site and parking on-site during the bump-in and bump-out periods prior to and following an event is variable and depends on the type and scale of event in question. The bump-in period for Splendour in the Grass is the longest time at 21 days, which would involve hundreds of vehicle movements per day in the days immediately prior to the event opening.

A 30,000 patron crowd could involve between 5,250 and 8,580 cars parking on site, depending on the car occupancy and mode share. The traffic assessment (PB, 2011) assumes a 2.9 average car occupancy and 48% public transport mode share for day patrons – which equates to approximately 7,700 cars parked on site.

Similarly, for a 20,000 patron event (10,000 day patrons and 10,000 campers) a 2.9 average car occupancy and 48% public transport mode share for day patrons would equate to approximately 4,660 cars parked on site.

Most of the vehicles on site are from campers (due to their lower car occupancy and public transport mode share). For the scenarios mentioned above, we can calculate 2,430 day patron vehicles parked on site for the 30,000 patron event and 1,620 for the 20,000 patron event. This means 5,270 campers' cars for the 30,000 patron event and 3,520 for the 20,000 patron event.

The camper's parking would fill up first, with the overflow parking in the southern car park. The 3,708 northern spaces and 1,038 spaces in the central parking area could accommodate some of the 5.270 campers, but the remainder (534) would need to park in the southern parking area, along with the 2,430 day patrons. For these patrons shuttle buses are provided to take them and their equipment from the car park to the camping areas.

Taking into consideration the location of accommodation options in the surrounding areas, it is estimated that 55% of vehicles would be arriving from the north and 45% from the south.

Under normal traffic event management circumstances, there are a number of traffic management resources available to Parklands including nominated on-ground traffic management staff, camping marshals, paid police services, trained volunteers and tow trucks kept on site for mechanical difficulties.

2.2.3 Event requirements

Event usage of the site generally involves the following activities, subject to the size and nature of an event:

- Management of the event and event site;
- Assembly and dismantling of the temporary infrastructure for the event ('bump in' and 'bump out' periods) which will occur typically in the 3 to 21 days prior and 1 to 7 days following the event;
- Erection of temporary structures;
- Entertainment in performance tents and spaces;
- Temporary camping, ancillary to event usage, with associated infrastructure and services;
- Provision of facilities including stalls, food outlets, bars, toilet and shower facilities; and
- Monitoring of event compliance.

The objectives of the Event Space (used for a limited period each year) are to:

- Provide a safe, secure and healthy venue site for patrons, guests and workers;
- Provide temporary camping facilities to accommodate patrons and staff so as to minimise traffic generation and off-site impacts;
- Monitor key factors before, during and after events and adopt and implement various recommendations, strategies, monitoring and mitigation measures proposed in any specialist assessments;
- Integrate environmental initiatives such as off setting carbon emissions, waste avoidance and recycling and environmental education; and
- Plan event timetables to minimise traffic peaks and minimise any noise emissions.

2.2.4 Infrastructure and Services

a) Permanent

The site will be accessed from the Pacific Highway via Tweed Valley Way from the north and the south. Site access points are shown in Figure 2

The main entry to the site will be from Gate A which leads directly into the southern carpark. There will be a secondary access via Gate C which is just to the south of Gate A. These will be used mainly by patrons in private cars. Buses will access the site via Gate B which is directly north of Gate A. Gate S is on Jones Road and is a separate access for service vehicles. Emergency services will be able to use any of these gates but will also have available flood free access across private property to the north of the site to Wooyung Road to the north.

There will be some development to the site including the construction of a conference centre (in the future), cultural centre and sewerage treatment plant, as well as the development of a major access (spine) road and other minor road works.

The spine road will be above the 1 in 100 chance per year flood for its entire length. In the long term it will be fully sealed. However, initially it is anticipated that it will be sealed either side of the underpass (under Jones Road) and the rest will be formed and compacted generally with 200mm of gravel. Most traffic movement, including emergency evacuation, will be on this road.

Additional access roads on the site, referred to in this report as 'event laneways', will be raised 100mm above existing ground level. The event laneways which primarily serve the camping areas will be usable up until the point of inundation.

A pedestrian walkway between the event areas and the southern car park will also be raised to the 1 in 100 chance per year flood level.

Grid fed electricity supply services are available at the site at three locations – in the southern carpark, in the area north of Jones Road and also in the far north of the site.

The spine road is proposed to have either permanent lighting structures in place or will utilise large, trailer-mounted, diesel-powered floodlights.

Temporary water and waste systems will be used until permanent systems are in place.

b) Temporary

A number of services and infrastructure will be temporarily set up for specific events. This includes:

Auxiliary power for the site will be diesel generator driven. A number of large floodlights on movable diesel generator trailers are used to light key areas. Lanterns that are strung up above the ground are used to light the internal walkways and access roads.

Parklands will have a temporary water storage and reticulation system in place for events until such time that a permanent water treatment and storage facility is built. Temporary water storage systems include a 220 kilolitre header tank located near the resource centre which will feed a series of 10 kilolitre tanks distributed across key parts of the site. Before and during events water levels will be constantly monitored and water cartage trucks will be used to replenish supplies in a manner than maintains a suitable water supply buffer.

Similar to temporary water supply systems, Parklands will have a temporary waste water collection and management system in place for events until such time that a permanent onsite wastewater treatment plant is built.

The temporary system will involve a series of 10 kilolitre tanks positioned next to clusters of toilet and shower amenities. Contractors will constantly monitor and pump out these tanks as required. A dedicated 100 kilolitre holding tank located next to the resource centre will be used to collect and store wastewater. Wastewater will be suction pumped from this bulk storage tank using 20,000 litre tankers and will be disposed of to a licensed sewerage treatment plant.

Typically for a 60% event there will be sufficient onsite food vendors, caterers and the

Parklands General Store capable of providing meals to the entire event population for a period of up to 3 days without the need for restocking.

In particular, Event Producers will directly control both the General Store (which sells a wide provision of dry foods, basic medical suppliers and camping equipment (i.e. batteries and torches, etc). Depending on the nature of the flood event, all or part of these food stocks could be utilised in case of an emergency.

For very large events the site will have a full triage with medical staff and resources, including the services of a Registered Doctor to provide a GP style clinic with nurses and medics and two on-site ambulances. A medical services assessment identified that to ensure adequate medical care provisions for festivals, the appointed service must have the resources to provide care for up to 3% of the patrons over the period of the festival. This is more than adequate as Emergency Management Australia states that 0.5-1.5% of concert goers will present to the medical centre (Barnes, 2010).

Events held at Parklands will provide sufficient security personnel to manage all aspects of the event including perimeter and event entrance security, camping and carparking patrols, etc. Security will be supported by paid police personnel who will be present during all event days.

Security staff will be briefed and made aware of their roles and responsibilities in the unlikely event of an emergency such as a flood.

3 FLOOD RISKS

3.1 FLOOD GENERATING WEATHER

The seasonality of flooding in the region is the result of two distinct weather patterns; ex-tropical cyclones and intense depressions (east coast low pressure systems) close to the coast (SES, 2006).

In the early months of the year, tropical cyclones originating in the Coral Sea may move south and there have been occasions when the path of a cyclone has produced rains of duration and intensity to produce a flood in the northern river catchments (SES, 2006).

The most potent cause of flood rain events is the development of intense depressions close to the coast which usually form off either southern Queensland or northern NSW in a trough from the Coral Sea or from a shallow system. Depressions can develop at any time of year, but are most likely when sea surface temperatures are high and the air is humid. Therefore, most flood events in the Brunswick Valley catchment occur in the first half of the year with a peak period from February to April.

Rainfall patterns are also dependant on weather patterns that occur throughout the year. Flooding is more prevalent in a La Nina year when rainfall is significantly greater than the mean average rainfall. Thunderstorms, which generally occur during the summer, can also result in localised flooding which could impact specifically on the site.

3.2 FLOOD PROBABILITIES

The probability of a flood occurring during an event day on the site is extremely low. The table below shows the probabilities for various flood events occurring whilst an event is taking place or being set up. For the PMF event which can have a probability of anywhere between 1 in 10,000 and 1 in 10,000,000, the most conservative estimate (i.e. the most frequent) has been used. These probabilities ignore any seasonality in flooding but since the three proposed events are outside of the peak flood season, the probability of events being flooded is most likely less than shown in the table.

Table 1: Flood probabilities

Flood Magnitude	**Chance of occurring during bump in**		**Chance of occurring during an event**	
	1 week	**3 week**	**2 day**	**3 day**
1 in 5 year	1 in 260	1 in 87	1 in 912	1 in 609
1 in 20 year	1 in 1,043	1 in 348	1 in 3,650	1 in 2,433
1 in 50 year	1 in 2,607	1 in 869	1 in 9,125	1 in 6,083
1 in 100 year	1 in 5,214	1 in 1,738	1 in 18,250	1 in 12,167
PMF event (1 in 10,000)	1 in 521,429	1 in 173,810	1 in 1,825,000	1 in 1,216,667

Design flood events for the local creek systems were modelled using the average rainfall intensities shown in Table 2 accordance with methodologies set out in Australian Rainfall and Runoff.

Table 2: Average Rainfall Intensities

Flood chance per year	**Rainfall Duration (hrs)**	**Rainfall Intensity (mm/hr)**	**Total Rainfall (mm)**
1 in 5	12	14.2	171
1 in 5	24	9.6	230
1 in 50	12	21.6	259
1 in 50	24	15.1	362
1 in 100	12	24.1	289
1 in 100	24	16.9	406
PMF	12	78.3	940
PMF	24	64.6	1,550

3.3 FLOODING ON THE SITE

The site is affected by both local catchment flow and flooding from the broader catchment. Local flooding will occur more quickly but will be shallower and of shorter duration while flooding from the broader catchments will take longer to arrive but may be deeper and remain on site for longer.

3.3.1 North

To the north of the central ridgeline, the site drains to the north and east towards the Crabbes Creek watercourse, which is itself a tributary of Mooball Creek, which flows towards the coastline in the east, and thence in a northerly direction and outlets to the ocean at Pottsville.

A number of man-made drainage swales have been excavated across the paddock areas to facilitate drainage. A farm dam with an approximate area of 1.8ha exists in the north-western part of the site.

Inundation due to floodwaters comes initially from overland flow along minor watercourses and open channels as a result of intense rainfall within the small catchment of the northern part of the site. Following this, or quite independently from such flooding, flooding from the Crabbes/Moobal Creek system will spread out across those floodplains and backup onto the site.

The backwater flooding takes longer to arrive at the site, as the flood storage downstream of the site would effectively have to “fill up” prior to the site being subject to major catchment flooding. Nevertheless flood risk in the northern part of the site are dominated by flooding within Crabbes Creek backing up onto the site

3.3.2 South

The southern part of the site is located on the floodplain for Billinudgel and Yelgun creeks and has different flooding characteristics than the northern site.

Flooding is dominated by water breaking out of these watercourses and entering the floodplain. The catchments of Billinudgel and Yelgun creeks upstream of the site are approximately 4.5km$_2$ and 0.5km$_2$, respectively. The response time of the southern catchment is significantly shorter than that of the Crabbes Creek catchment to the north.

The southern part of the site is also affected by flow entering via culverts under the Pacific Highway and Tweed Valley Way. This causes water to back up and travel northward in an existing cane drain, which runs parallel to Tweed Valley Way.

3.4 FLOOD HAZARDS

3.4.1 Hydraulic Hazards

There are a number of factors which are used to categorise flood hazard. These include the depth of the floodwater and the velocity. The rate of rise of the floodwater is another contributor to flood hazard.

The preliminary hydraulic hazard on the site has been categorised by the following scale shown in Figure 3 (Worley Parsons, 2011).

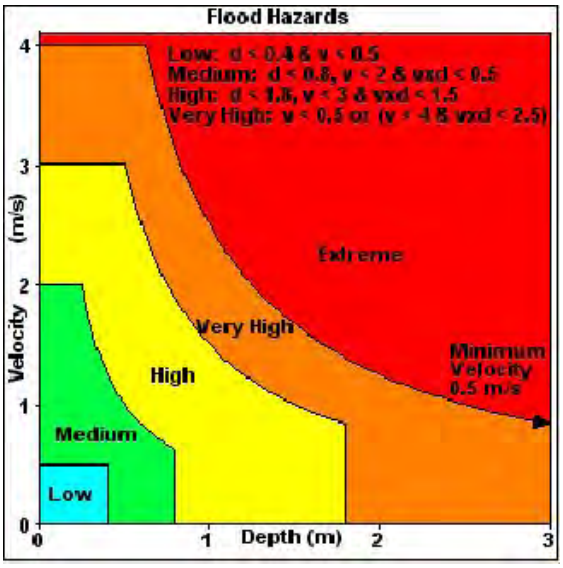


Figure 3: Hazard Categories

There are different threshold characteristics that define the hazard categories:

- Low – people are able to walk through water comfortably and vehicles can drive through
- Medium – vehicles start to float away but adults can walk through water with a little difficulty
- High – water becomes hazardous to walk through
- Very High – damage to buildings can occur
- Extreme – damage to buildings is likely

3.4.2 Preliminary Hazard Categories

The peak hydraulic hazard has been modelled for the 1 in 5, 1 in 50, 1 in 100 chance per year and PMF events and is shown in Figure 4 to Figure 7.

There is considerable land which is flood free on site even in a PMF.

In a 1 in 5 chance per year flood, the majority of the event areas and car parking are categorised as low hazard, with some areas of high hazard throughout the north east corner of the event area.

The 1 in 50 and 1 in100 are relatively similar to each other with the majority of the application area categorised as being of high hazard, with some of the western event areas and southern car park being a medium flood hazard.

In a PMF the majority of the flooded areas have very high flood hazard although much of the site is flood free.

3.4.3 Flood Depths

The preliminary hydraulic hazard is a function of velocity and depth as demonstrated in Figure 3. Within Parklands, the majority of the site is relatively flat. Flooding is caused by water flowing across the floodplain and pooling. Therefore the velocity of the floodwater is very low and so the relatively high hazard ratings are caused by the flood depths which are depicted in Figure 8 to Figure 11.

a) 1 in 5 chance per year

The majority of the northern camping and event areas are between 0.1 and 0.9m deep, with the deeper areas being found in the north east parts of the area. There are a few small locations where the depths increase to 1.7 but the area is extremely small. Generally it would be safe, though not desirable, for people to be able to safely walk over most of this site were it to flood to these depths. Cars would float if they remained in many parts of this site.

The southern car park experiences a maximum depth of approximately 0.6m along its northern and southern edges. The majority of the car park area experiences depths of less

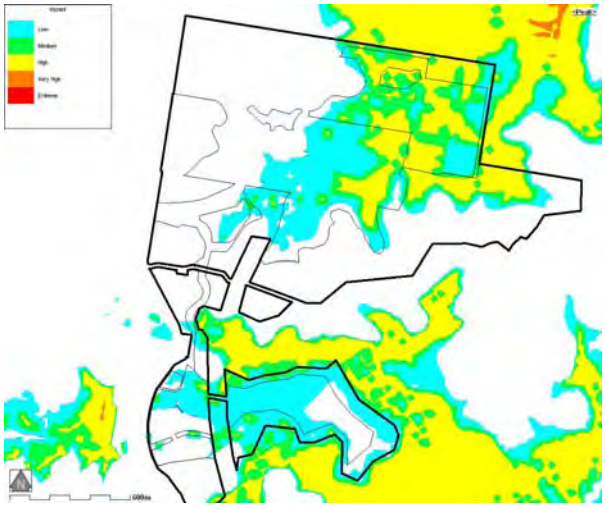


Figure 4: Peak flood hazard in 5yr flood event

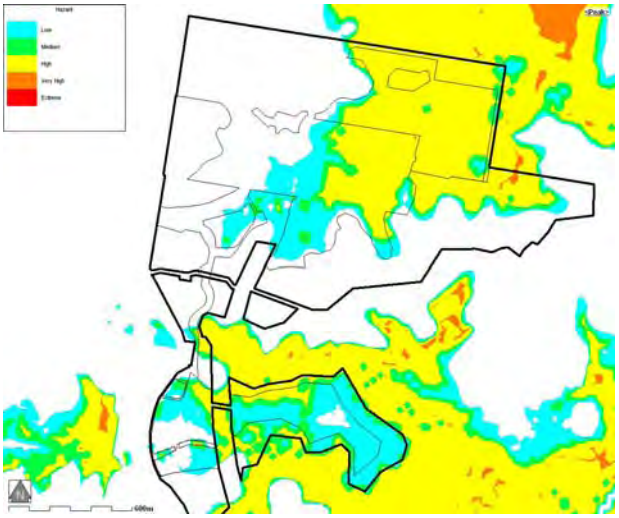


Figure 5: Peak flood hazard in 50yr flood event

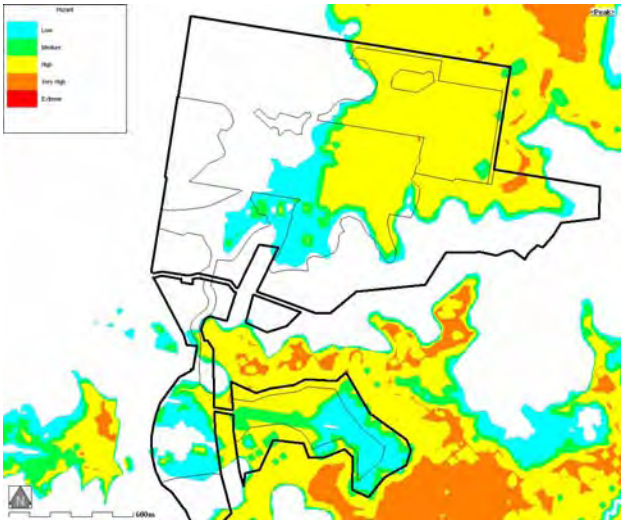


Figure 6: Peak flood hazard in 100yr flood event

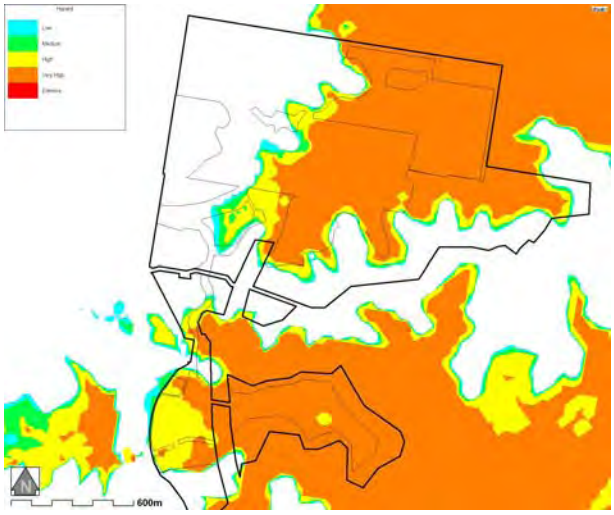


Figure 7: Peak flood hazard in PMF flood event

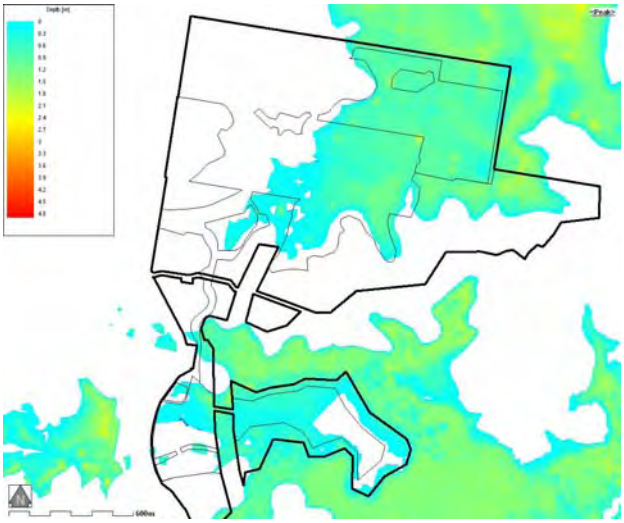


Figure 8: Peak flood depth in 5yr flood event

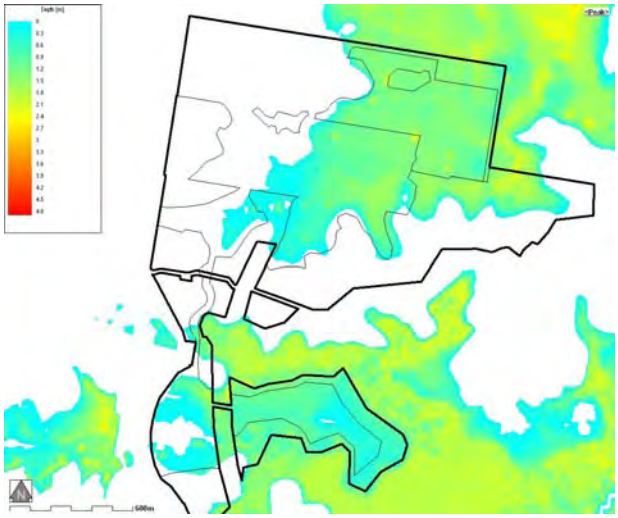


Figure 10: Peak flood depth in 100yr flood event

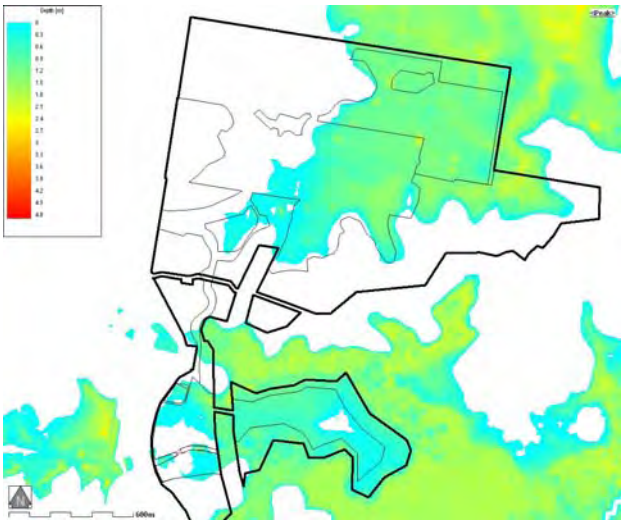


Figure 9: Peak flood depth in 50yr flood event

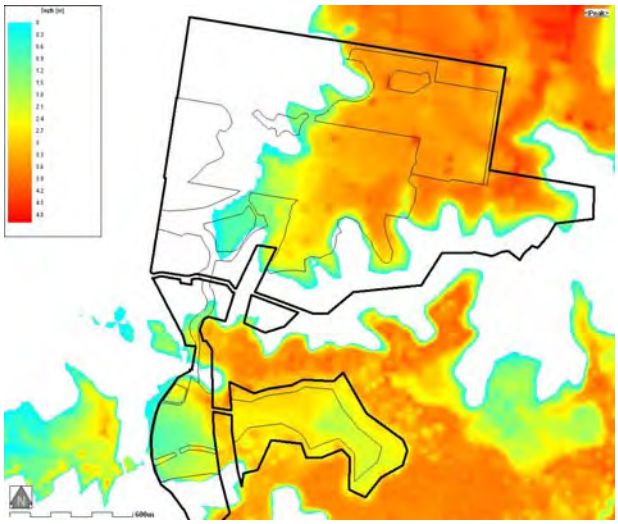


Figure 11: Peak flood depth in PMF event

than 0.4m with some parts to the east of the car park and to the west of the pedestrian walkway remaining flood free. Cars in more than about 0.3m of water could begin to float.

b) 1 in 50 chance per year

On the northern part of the site, floodwaters will reach of maximum of 1.5m deep, with the majority of the area experiencing flooding around 1m deep. This would be unsafe for cars or pedestrians

In the southern part of the site, the northern boundary of the car park will experience the greatest depths at 0.9m, while the rest of the car park is subject to depths between 0.4-0.7m. Any cars left in these areas would float although it may be safe, though not desirable, for people to walk in these areas. Parts of the car park area to the west of the pedestrian walkway remain flood-free.

c) 1 in 100 chance per year

On the northern part of the site, floodwater will reach a maximum depth of approximately 1.5m in the central parts of the event and camping areas.

In the southern part of the site, the majority of the car park area will have floodwaters approximately 1m deep with one or two very small locations showing points up to 1.5m.

Most of the flooded parts of the site would be unsafe for vehicles or pedestrians.

d) PMF

On the northern part of the site, the depth of floodwater ranges from a maximum of approximately 4m across the north-east camping areas to 0.5m in the south-west parts of the event area.

In the southern part of the site, around the southern car park, flood depths range from 0.8-2.8m deep. The area to be used for the pedestrian walkway experienced flood depths of up to 3.5m deep (however, this walkway will be raised up to withstand the 1:100 flood so while some flooding may occur across its surface, it will not reach the depths described here).

3.4.4 Rates of Rise

The rate at which floodwaters rise also contributes to the overall flood hazard.

Figure 12 to Figure 15 are design hydrographs (flood level versus time) for locations in the centre of the event area and in the southern carpark for a 1in 5 chance per year flood and a PMF. These are indicative of the range of rates of rise which can occur in the different parts of the site for different sized floods.

It should be stressed that these are design hydrographs which correspond to a theoretical rainfall event and a real event may have a different rate of rise depending on the distribution of rainfall over time and space. Nevertheless they are instructive and while smaller events may rise quicker than the design hydrographs suggest, none are likely to rise more quickly than the 12 hour PMF illustrated here.

It should be noted that in all floods the site is likely to remain flooded for more than 24 hours.

a) The Event Area

Figure 12 shows that in the middle of the camping area, flood causing rain starts a couple of hours before there is any noticeable water over the ground but within another two hours it could be about 0.3m deep and remain so for several more hours. This would be as a result of the initial rainfall being absorbed by the ground and early runoff taking some time to accumulate as it flows through the small catchment upstream of the event area. This water, having reached the flat ground of the event area will take some time to drain away. During this time flood depths would be such that it would possible to walk and drive around this part of the site.

About 10 hours into the event water from Crabbes Creek begins to arrive and add to the water which is already covering the site. Within an hour the water would be too deep to drive through but even in the peak of the flood several hours later it would be possible, though not desirable, to walk through this part of the site.

These thresholds will be exceeded sooner in the north eastern part of the site and later in the south western part of the event area.

In a PMF (Figure 14) the hazard thresholds would be exceeded much more quickly. After about one hour the ground would begin to flood and it would take only another hour before the water was too deep to drive through. Within 4 hours of this the water would be too dangerous to walk through as water began arriving from Crabbes Creek. After this the water would rise a couple of metres in as many hours.

b) Southern Parking Area

Figure 13 shows a hydrograph for the southern parking area where a 1 in 5 chance per year flood would take nearly 6 hours to reach a level where it was flooding the carpark. Even at the peak of the flood a couple of hours later it would still be possible to drive through the water.

In a PMF it would take about 3 hours for the site to begin flooding but in less than half an hour the water would be too deep to drive through in much of the car park and within an hour would be too dangerous to be walking through.

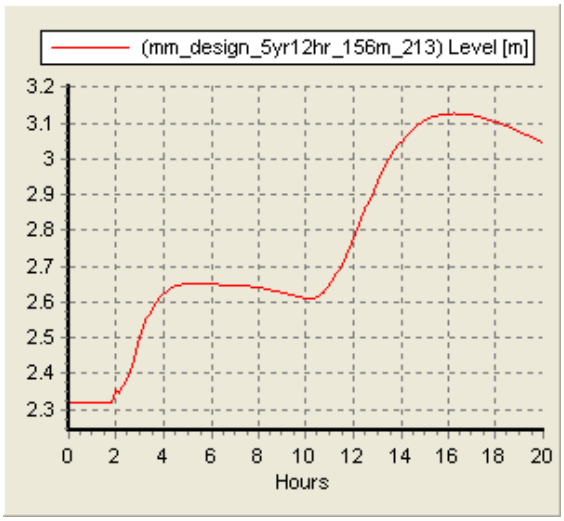


Figure 12: 5yr flood event hydrograph – camping area (2.3m terrain)

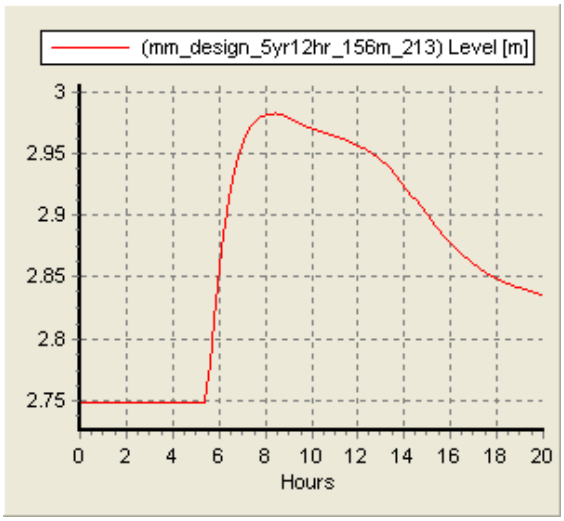


Figure 13: 5yr flood event hydrograph – carpark area (2.9m terrain)

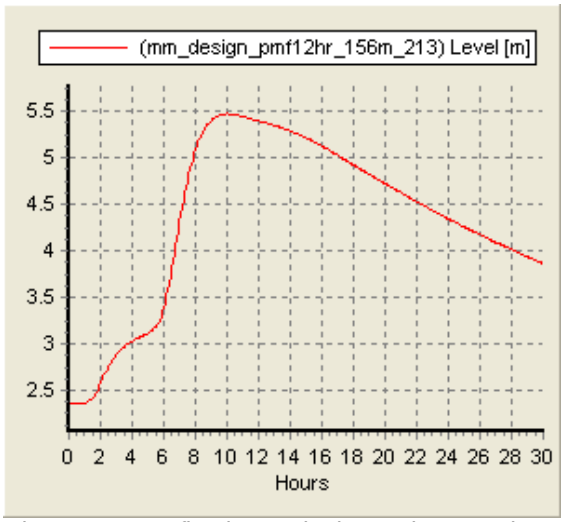


Figure 14: PMF flood event hydrograph – camping area (2.3m terrain)

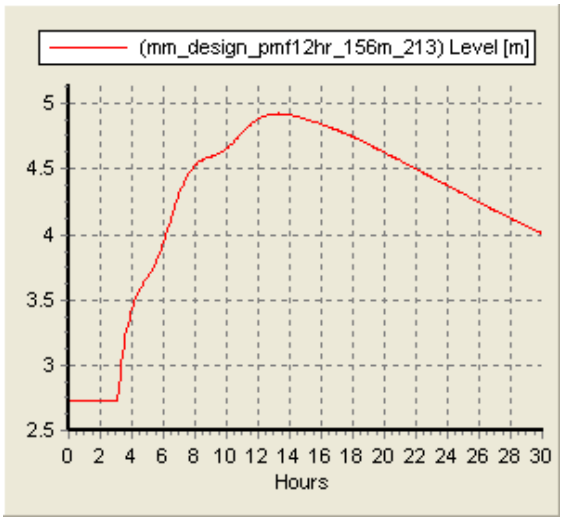


Figure 15: PMF flood event hydrograph – carpark area (2.9m terrain)

3.5 TIME NEEDED TO EVACUATE

3.5.1 Vehicular Evacuation

According to the Australian Standard AS 2890.1-1993 – Parking Facilities – Off Street Parking, the design rate for vehicles exiting parking facilities onto a public road is 600 vehicles per hour per lane. This also is the rate that the NSW SES recommends for estimating the flow rate of vehicles along evacuation routes during a flood (Opper, 2004).

As set out in 2.2.2, there will be about 4,750 parking spaces in the camping area and central carpark and, in a 30,000 patron event, about 3,000 in the southern car park, including about 2,430 vehicles belonging to day visitors.

Tweed Valley Way is a two lane road which connects to the Pacific Highway North and South of the site. This provides the site with a single evacuation lane heading north and a single evacuation lane heading south. It also means that there is a lane available from each direction for use by emergency service vehicles.

Vehicles from the north and central parking areas will be directed onto Jones Road and then north along Tweed Valley Way. Those in the southern carpark will be directed south along Tweed Valley Way.

Taking account of the preceding information, it is estimated that it would take about 8 hours for all of the vehicles to exit north and about over 5 hours for those heading south to exit. It may be possible to send some of the vehicles from the event area through to the southern exit once the southern car park has evacuated. If this were done then it would take less than 7 hours for all of the vehicles to evacuate.

In a 20,000 patron event the estimated 4,660 vehicles would take about 4 hours to evacuate if the full capacity of both exits was able to be utilised.

The NSW SES, in its evacuation modelling (Opper 2004), allows a further 1-2 hours for traffic delays caused by vehicles breakdowns, accidents, trees across roads or water over roads (see Section 3.6.7) for this duration of evacuation traffic.

In addition to these travel times and potential delays, there would be time taken for management to decide to call an evacuation, time to organise staff for an evacuation, time to disseminate the evacuation order to patrons, time for patrons to pack and time for patrons to reach their vehicles.

Those who are camping could need at least an hour to pack and those who have to walk the two kilometres to their cars at the southern car park could take between 30 minutes and an hour. Dissemination of the evacuation order could be done quickly through the public address system but people are likely to need time to get verification from camp marshals and security staff and comprehend what they need to do. The time taken for decision making and staff briefings will depend on the decision making system and training that is in place.

All together from the time the evacuation decision needs to commence to the time the last vehicles leave the site could take about 11 to 12 hours for a 30,000 patron event.

Comparing these times with those in Section 3.4.4, it is clear that evacuation would need to commence well before a flood causing rainfall event began if it is expected to get all vehicles and patrons off the site ahead of floodwaters becoming hazardous. It is also clear from Section 3.2 that the chance that it will be necessary to do so for any event is quite small. Nevertheless it must be planned for and this Flood Evacuation Plan includes a decision support framework that assists in making early evacuation or event cancellation decisions and efficient site evacuation to reduce the chance of patrons being trapped on site by flooding.

3.5.2 Pedestrian Evacuation

The rates of rise shown in Figure 12 to Figure 15 make it clear that should complete vehicular evacuation of the site not occur, pedestrian evacuation from flood affected areas to high ground is easily achievable.

The furthest anyone would have to walk from a flooded event area to the flood emergency assembly point is about 500m. Even at a very slow walking pace of 2kph (which could occur with large crowds), it would take no more than 15 minutes to reach flood free ground.

In an event rising as quickly as a PMF floodwaters would not become hazardous on the site within one hour of water beginning to flood the ground. Therefore, the physical cue of the event area beginning to flood would provide sufficient warning time for people to safely evacuate on foot.

3.6 OTHER RISK FACTORS

In addition to the risks normally associated with flooding, the nature of this event introduces some other risks which need to be taken into consideration in the management of flood response. These additional risks have been taken into consideration when developing the management actions and have been cross referenced with the actions that will help ameliorate their risk.

3.6.1 Intoxication of patrons

If a flood were to occur during an event, problems would exist with the number of people capable of safely driving their vehicle due to alcohol and recreational drug consumption. This will be especially relevant for those camping with their vehicles. The condition of participants may also affect their

ability and/or willingness to follow directions issued by authorities.

Addressed: Sections 6.2.1, 6.4.6, 7.2.1, 7.2.2, 7.4.4, 7.4.8, 8.2.1, 8.3.3, 8.3.4, 9.2.1, 9.2.2, 9.3.3, 9.3.4.

3.6.2 Night time flooding

Floods can occur at any time of the day or night. If a flood happened during the night, additional risks will be present including trying to communicate with people who may be asleep and a lack of lighting for response actions to be undertaken.

Addressed: Sections 5.3, 7.4.5, 9.2.2.

3.6.3 Resources for those on site

There are two additional risks regarding resources onsite. Firstly, if people remain onsite in flood free areas, there needs to be enough water, power and toilet facilities for the number that remain and secondly, these facilities and resources need to be located in areas that are not affected by the flooding and do not require people to cross flooded areas to reach them. There needs to be sufficient resources to cater for people remaining on site for at least 24 hours.

Addressed: Sections 5.3, 6.1.2, 6.4.2, 7.1.2, 7.4.5, 8.1.2, 9.2.2, 9.3.4.

3.6.4 Damage to assets

There is also likely to be large amounts of expensive equipment and machinery to support events, including sound and light equipment and power generators.

In addition, more than 8,000 vehicles will be parked on site and if they are each worth an average of $10,000 they would have a combined value of $80,000,000. Possessions inside the vehicles and camping equipment could easily increase this value by a further 20% to 30%.

With such assets at risk of loss or damage from flooding people may take risks or ignore directions from staff in order to save their assets.

Addressed: Sections 5.3, 6.1.2, 6.4.2, 7.1.2, 7.4.5, 8.1.2.

3.6.5 Risk of Electrocution

With a range of temporary onsite power generators located across parts of the site there is a risk that if such infrastructure becomes inundated there arises the potential for electrocution.

Addressed: Sections 5.3, 7.4.5.

3.6.6 Medical emergencies

Not only will patrons on site need to have a supply of medical resources on hand, but in the event of a life-threatening emergency, emergency response personnel will need to be able to reach affected patrons. This may be complicated if external and internal roads are closed due to flooding and ambulances need to transport a patient off-site.

Addressed: Sections 5.3, 7.4.5, 9.2.2, 9.3.4.

3.6.7 External road flooding

If flooding is occurring on site, it may not be enough to evacuate all people from the site, as external roads to the north and south of the parklands may also be cut by flooding. Patrons would then be forced to queue on external roads and wait for flood waters to subside. This could impact on the number of cars that are able to leave the site or place cars in the path of rising floodwaters.

Addressed: Sections 3.7, 8.3.5.

Figure 16 shows the local road network and the low points on each road. A star indicates that the road would be cut by the 1 in 100 flood.

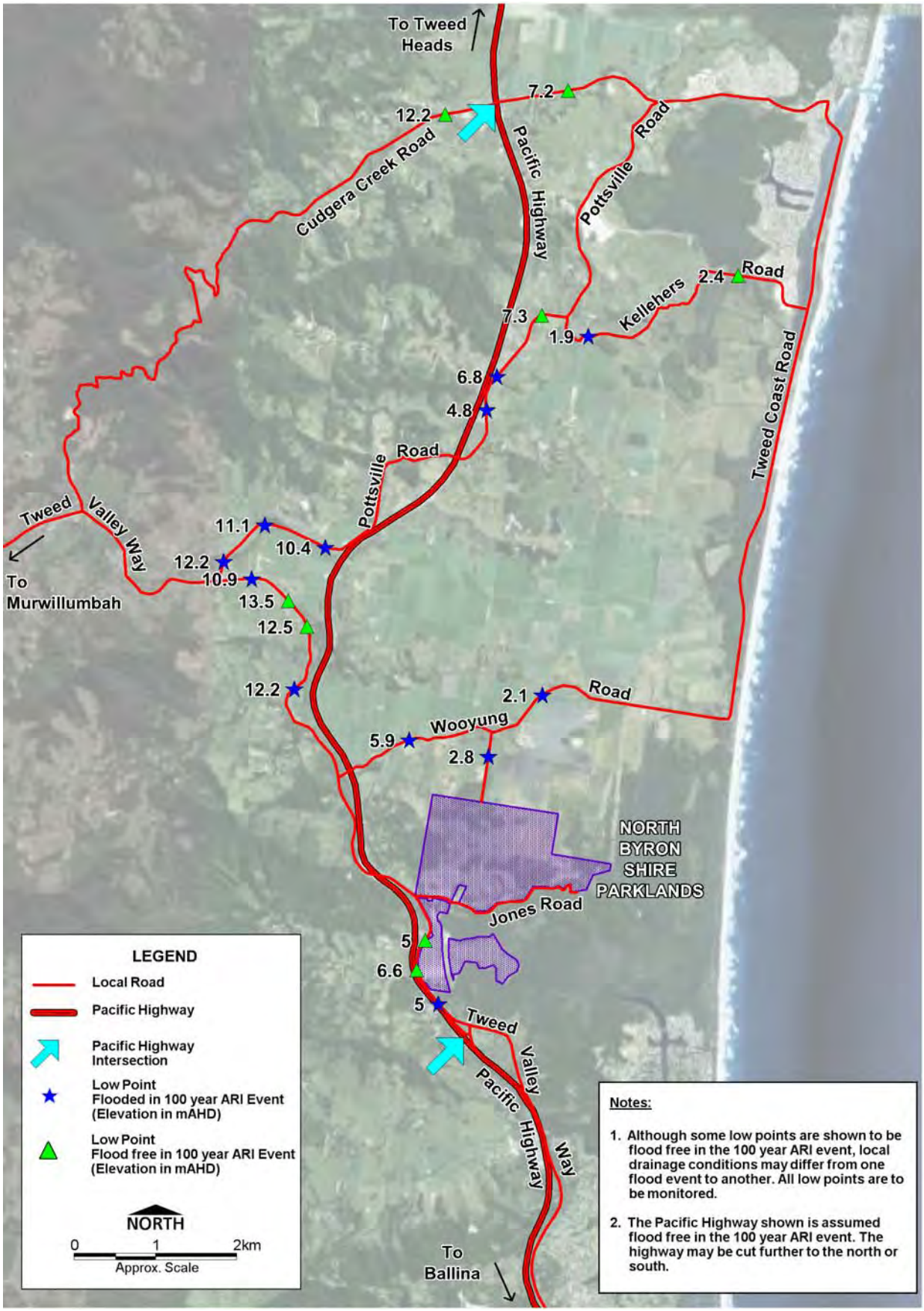


Figure 16: External Road Low Points

3.7 FORECASTS AND WARNINGS

Monitoring the weather forecasts and warnings will be an integral step in managing the flood risk of the North Byron Parklands site. This will be critical being able to evacuate the site before flooding commences.

The Bureau of Meteorology (BoM) has forecast rainfall maps which can be used to estimate the amount of rain expected to fall over the next eight and four days, as well as the next 24 hours. This information is available at: www.bom.gov.au/jsp/watl/rainfall/pme.jsp

NSW Weather Warnings are issued by the Bureau of Meteorology and can be found at the following link: www.bom.gov.au/nsw/warnings/

Key warnings which operators and managers will need to look out for include Severe Weather Warnings for the Far North Coast, Flash Flood Warnings for the Far North Coast and Flood Watches/Warnings for the Brunswick River, Mooball Creek, Bilinudgel Creek or Marshals Creek.

To ensure that these warnings are noticed in a timely manner, the Venue Manager and the Event Producer and their nominated staff will have their mobile phone numbers added to the SES contact list for the issuing of SMS alerts for flood watches, flood warnings and evacuation orders.

The Bureau of Meteorology also has rainfall and river gauges which show the amount of rainfall that has fallen in the previous 24 hour period and stream gauges which indicate water heights. These can be monitored at: www.bom.gov.au/australia/flood/

There are several gauges in the region that could assist with flood prediction and warning. These include the gauges located at Burringbar Reservoir (rainfall) and Lacks Creek/Middle Pocket (river and rainfall) as well as the river gauges installed by Parklands on Crabbes Creek and Billinudgel Creek. The data on the website is updated every hour or so.

The radar service on the BoM website also shows current rainfall location and intensities. The radar station to be used for the site would be the Brisbane radar at: www.bom.gov.au/products/IDR663.loop.shtml#skip

The NSW Northern Rivers Regional Organisation of Councils (NOROC), which includes Byron Shire, has a web based tool called RoadInfo that allows consistent regional road information during floods to be published online. The website includes a map of the Northern Rivers Region with markers on roads that are closed, those that motorists should exercise caution on, those undergoing road works and those which have been re-opened.

However, it is important to remember that the information on RoadInfo is based on the information collected at discrete points in time; it is not a representation of the real-time status of roads. It is not intended to be a full and accurate representation of road conditions. Road conditions can change at any time, so motorists need to be aware that information listed on this site may be inaccurate, incomplete or out of date.

Flood watches and warnings from the Bureau of Meteorology are also provided on the RoadInfo site. Users can also search their current location on a map and be provided with safe driving directions to their destination. To access this information go to: www.myroadinfo.com.au

4 PHILOSOPHY AND RESPONSIBILITIES

4.1 EMERGENCY RESPONSE PHILOSOPHY

4.1.1 Priorities

This Flood Risk Management Plan recognises that protection of life is of critical and primary importance.

The Plan also recognises the need for protecting the assets of patrons, artists and suppliers but this must be secondary to protection of life and limb.

While the Plan recognises the need for event organisers to meet their financial goals, this will not be consciously done to the detriment of protecting life or property. It is incumbent on event organisers to take all necessary measures outside of this Plan to manage the financial risks which flooding poses to their event, organisation and brand.

4.1.2 Alert Levels

To assist in managing flood risks and communicating response actions, seven flood alert levels have been developed for use in this plan. They have been colour coded to further assist in communication. They are

Normal - White – daily monitoring of weather forecasts and warnings

Flood Watch – Blue - Flooding might be a possibility – more frequent weather and warning monitoring and preparatory actions.

Flood Warning – Yellow – Flooding is expected to occur – Continuous weather and warning monitoring and get ready to evacuate.

Evacuation – Orange – All patrons, artists, suppliers and staff to leave the site by vehicle. Continuous weather and warning monitoring.

Take Refuge – Red –Flooding is an immediate threat to patrons and they must take refuge on flood free land. Continuous weather and warning monitoring.

Cancel – Black – imminent flood threat or actual flooding makes it unrealistic for the event to be held or to continue.

All Clear – White – Flooding has ceased. The event may continue or may be stopped depending on the circumstances.

These may be revised up or down depending on the changing forecasts and actual conditions. Once a decision is made to cancel an event this cannot be revised.

4.2 ALERT MATRICES

Alert Matrices have been developed which nominate thresholds that trigger escalation of alert levels at different times during an event's life.

It is recommended that the Alert Matrices play a key role in the planning and training processes before a flood occurs, as well as when flooding is possible and when it does happen. It will be important to maintain the Matrices and update it if new information is made available and review it after events which trigger any level of flood response.

The Alert Matrices are shown in Table 3 below and will be used to define the upper trigger points for undertaking actions when flooding is occurring or could possibly occur.

It should be stressed that these are upper bound trigger points and the Alert Level MUST be escalated if any one of these thresholds alone is reached or exceeded because there is a high degree of certainty that the corresponding management actions will be necessary. The Venue Manager or the Event Producer can choose to escalate the Alert Level before these thresholds are reached. Also a combination of some thresholds may trigger escalation of the Alert Level and applicable combinations are also shown in the matrices

The rainfall forecasts and radar thresholds apply to observations for the site or within a 10km arc from north through west to south of the site. Rainfall gauging applies to Burringbar and Lacks Creek/Middle Pocket.

External roads refers to the routes north and south of the site all the way to the Pacific Highway.

Table 3::Flood Alert Matrices

Forecast/Observation	**Individual alert thresholds During Bump In**				
8 days forecast	>300mm	NA	NA	NA	NA
4 days forecast	>150mm	NA	NA	NA	NA
24 hour forecast	>50mm	>250mm	>275mm	NA	NA
Flood warnings	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Directive from SES	Directive from SES	Directive from SES	NA
Radar	Moderate or heavy after >100mm in 24hrs	Heavy after >175mm in 24hrs	Heavy after >225mm in 24 hrs	NA	NA
Fallen rain in 24 hours	>100mm plus more forecast	>150mm plus >75mm forecast or >200mm fallen	>200mm plus 75mm forecast or >250mm fallen	NA	NA
Stream gauge readings	Crabbes Creek >Xm and rising Bilinudgel Creek >Xm and rising Lacks Creek >Xm and rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	NA
Water on site	NA	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 200mm depth in areas being used	NA
External Roads	Any local roads cut by floodwaters	NA	NA	North and South Cut and Orange Alert threshold reached	NA

Note: Stream gauge levels can only be worked out with the BOM when gauges have been installed

Forecast/Observation	**Individual alert thresholds during week before the event**				
8 days forecast	>300mm	NA	NA	NA	NA
4 days forecast	>150mm	NA	NA	NA	>500mm including the event days
24 hour forecast	>50mm	>250mm	>275mm	NA	NA
Flood warnings	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Directive from SES	Directive from SES	Directive from SES	Directive from SES
Radar	Moderate or heavy after >100mm in 24hrs	Heavy after >175mm in 24hrs	Heavy after >225mm in 24 hrs	NA	NA
Fallen rain in 24 hours	>100mm plus more forecast	>150mm plus >75mm forecast or >200mm fallen	>200mm plus 75mm forecast or >250mm fallen	NA	NA
Stream gauge readings	Crabbes Creek Xm and rising Bilinudgel Creek Xm and rising Lacks Creek Xm and rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	NA
Water on site	100mm anywhere on site	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 200mm depth in areas being used	NA
External Roads	Any local roads cut by floodwaters	NA	NA	North and South Cut and Orange Alert threshold reached	NA

Note: Stream gauge levels can only be worked out with the BOM when gauges have been installed

Forecast/Observation	Individual alert thresholds one day before the event				
4 days forecast	>150mm	NA	NA	NA	NA
24 hour forecast	>50mm	>200mm	>250mm	NA	> 400mm
Flood warnings	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Flood Warning from BOM/SES	Flood Warning from BOM/SES	Direcive from SES	Directive from SES
Radar	Moderate or heavy after >50mm in 24hrs	Heavy after >150mm in 24hrs	Heavy after >200mm in 24 hrs	NA	NA
Fallen rain in 24 hours	>50mm plus more forecast	>125mm plus >75 forecast or >175mm fallen	>175mm plus >75mm forecast or >225mm fallen	NA	> 300mm
Stream gauge readings	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising
Water on site	100mm anywhere on site	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 200mm depth in areas being used	More than 300mm depth in areas being used
External Roads	Any local roads cut by floodwaters	NA	NA	North and South Cut and Orange Alert threshold reached	NA

Note: Stream gauge levels can only be worked out with the BOM when gauges have been installed

Forecast/Observation	**Individual alert thresholds on day one or two of the event**				
4 days forecast	300mm	NA	NA	NA	NA
24 hour forecast	>50mm	>150mm	>200mm	NA	300mm rain
Flood warnings	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Flood Warning from BOM/SES	Flood Warning from BOM/SES	Direcive from SES	Directive from SES
Radar	Moderate or heavy after >50mm in 24hrs	Heavy after >150mm in 24hrs	Heavy after >200mm in 24 hrs	NA	NA
Fallen rain in 24 hours	>50mm plus more forecast	>125mm plus >75 forecast or >175mm fallen	>175mm plus >75mm forecast or >225mm fallen	NA	250mm rain
Stream gauge readings	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising
Water on site	100mm anywhere on site	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 200mm depth in areas being used	More than 300mm depth in areas being used
External Roads	Any local roads cut by floodwaters	NA	NA	North and South Cut and Orange Alert threshold reached	NA

Note: Stream gauge levels can only be worked out with the BOM when gauges have been installed

Forecast/Observation	Individual alert thresholds on final day				
24 hour forecast	>100mm	>200mm	>200mm	NA	NA
Flood warnings	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Evacuation directive from SES	Directive from SES	NA	Directive from SES
Radar	Moderate or heavy after >50mm in 24hrs	Heavy after >150mm in 24hrs	Heavy after >200mm in 24 hrs	Direcive from SES	NA
Fallen rain in 24 hours	>50mm plus more forecast	>125mm plus >75 forecast or >175mm fallen	>175mm plus >75mm forecast or >225mm fallen	NA	250mm rain
Stream gauge readings	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising
Water on site	100mm anywhere on site	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 200mm depth in areas being used	More than 300mm depth in areas being used
External Roads	Any local roads cut by floodwaters	NA	NA	North and South Cut and Orange Alert threshold reached	NA

Note: Stream gauge levels can only be worked out with the BOM when gauges have been installed

Forecast/Observation	Individual alert thresholds During Bump Out				
8 days forecast	>300mm	NA	NA	NA	NA
4 days forecast	>150mm	NA	NA	NA	NA
24 hour forecast	>50mm	>250mm	>275mm	NA	NA
Flood warnings	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Directive from SES	Directive from SES	Directive from SES	NA
Radar	Moderate or heavy after >100mm in 24hrs	Heavy after >175mm in 24hrs	Heavy after >275mm in 24hrs	NA	NA
Fallen rain in 24 hours	>100mm plus more forecast	>150mm plus >75mm forecast or >200mm fallen	>200mm plus >75mm forecast or >250mm fallen	NA	NA
Stream gauge readings	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	NA
Water on site	100mm anywhere on site	More than 100mm depth in areas being used	More than 200mm depth in areas being used	More than 300mm depth in areas being used	NA
External Roads	Any local roads cut by floodwaters	NA	NA	North and South Cut and Orange Alert threshold reached	NA

Note: Stream gauge levels can only be worked out with the BOM when gauges have been installed

4.3 ROLES AND RESPONSIBILITIES

4.3.1 State Emergency Service

The NSW State Emergency Service is the lead combat agency for flooding in NSW. It can command resources from other government organisations including local councils, Roads and Traffic Authority and the Police to assist in flood operations under its command. The Byron Shire Local Flood Plan sets out preparedness measures, the conduct of response operations and the coordination of immediate recovery measures from flooding within the Byron Shire council area.

Under the State Emergency and Rescue Management Act, 1989, the SES has the power to direct any citizen or organisation to take actions in response to flooding. This includes the power to order evacuations.

Any flood response directive issued by the SES or by delegated authority to others acting on its behalf must be followed by North Byron Parklands staff, event staff, artists, suppliers and patrons. This includes any order to evacuate the site or not evacuate the site, irrespective of what decisions have been made by management in accordance with this Plan.

4.3.2 Parklands Site Management

Parkland's Venue Manager or delegate will be responsible for ensuring that this Flood Risk Management Plan is:

- kept up to date;
- reviewed at least annually;
- reviewed after any flood or site evacuation;
- included in induction and training of site staff to a level appropriate to their responsibilities under the Plan; and
- provided to event managers during the planning phase of the event.

The Parkland's Venue Manager or delegate will also be responsible for:

- monitoring weather and site conditions and BoM warnings and make decisions in relation to all alert levels other than Black – Cancel.
- Communicating changes in alert levels to the Event Manager promptly
- Reviewing and approving Event Flood Management Plans to ensure consistency with the Site Flood Management Plan

The Venue Manager is solely responsible for elevating alert levels from White to Blue and Blue to Yellow. Moving to Orange or Red would require a meeting between the Venue Manager, Event Producer, SES and Police.

The Venue Manager will be responsible for deciding whether to move to Orange or Red but that decision can be overruled by the SES.

The Parkland's Venue Manager will provide information and advice to the Event Producer to assist in a decision in relation to alert level Black – cancel.

If there is not a legislative requirement to move to orange (i.e. the SES has not ordered an evacuation), then the authority will fall to the Venue Manager. Moving to red would be the same as Orange. Event cancellation would ultimately be the Event Producer in consultation with the Venue Manager. In all these cases the Event Producer would be responsible for delegating responsibilities to their event staff, site crew, fencing staff, security, bar managers, etc.

4.3.3 Event Producer

The Event Producer or delegate will be responsible for ensuring that:

- An event Flood Management Plan, consistent with this Plan, is prepared for each event
- All event staff are inducted into the Event Flood Management Plan to a level appropriate to their responsibilities under the Plan
- Weather and site conditions and BoM warnings are monitored
- The Event Flood Management Plan is implemented in accordance with the alert level

- Decisions in relation to alert level Black are made – Cancel
- Appropriate measures outside of the Event Flood Management Plan are taken to manage the financial risks which flooding poses to the event, organisers and brand.

4.4 USING THIS PLAN

The following sections set out the general flood management actions which need to be taken:

- Before and during an event irrespective of the flood alert level
- In Blue Alert – Flood Watch
- In a Yellow Alert – Flood Warning
- In an Orange Alert – Evacuation
- In a Red Alert – Take Refuge
- In a Black Alert – Event Cancellation
- After a Flood

5 MANAGEMENT ACTIONS – BEFORE AND DURING AN EVENT

This Section sets out all of the actions which will be taken in managing the site and planning and running events irrespective of the Flood Alert level which applies.

5.1 NEW STREAM GAUGES

Trigger for action: Always

Parklands will install and maintain stream gauges to better monitor water levels within the catchments. This will increase the accuracy of forecasting for the site and provide better flood warnings. Estimates suggest that for each stream gauge it will cost $10-15k for installation and $5-7k per year for maintenance. Two stream gauges would be installed. One on Crabbes Creek downstream of the site to detect backwater flooding from that stream and one on Billinudgel Creek upstream of the site to detect potential flooding of the southern carpark. The gauges will be linked into the existing ENVIROMON system to assist in flood forecasting for the whole region.

5.2 EMERGENCY CONTACT DETAILS

Trigger for action: Always

The Venue Manager will be responsible for keeping the list of Site Emergency Contacts in Appendix A up to date. These will be reviewed and updated one month before each event.

The Event Producer will be responsible for completing the Event Emergency Contacts list in Appendix A for the next event and ensuring it is current at the time of the event.

The Venue Manager will be responsible for ensuring that the most current version of both sets of emergency contacts are available to the Event Producer and the Local SES Controller immediately prior to an event being held.

5.3 PLANNING AND LAYOUT

Trigger for action: Always

During events which do not require the full capacity of the camping and parking areas (such as up to 60% capacity which is covered by this report) – the area which is unused will be located within the areas of the greatest flood risk and cordoned off to ensure that they are not used unnecessarily.

Camping will be kept away from the farthest edge of the north-eastern boundary to reduce the distance to higher ground. Double fencing will be erected around the site to prevent unlawful entry. It will be erected at the limit of the designated camping area to the north and east to prevent patrons entering the more flood prone areas at any time.

The spine road and pedestrian walkway will both be above the 1 in 100 chance per year flood so that in smaller events, and in the early stages of larger events there will be clearly defined paths for patrons to use.

The nominated emergency assembly areas for flood related emergencies will be the high flood-free areas shown in

Figure 17.

Currently, only certain parts of the site have access to permanent power supplies. The majority of power for the proposed events would be generator driven. A number of large floodlights on movable diesel generator trailers are proposed to light key areas. Lanterns that are strung up above the ground are proposed to light the internal walkways and access roads. The spine road is proposed to have either permanent lighting structures in place or will utilise the large diesel floodlights.

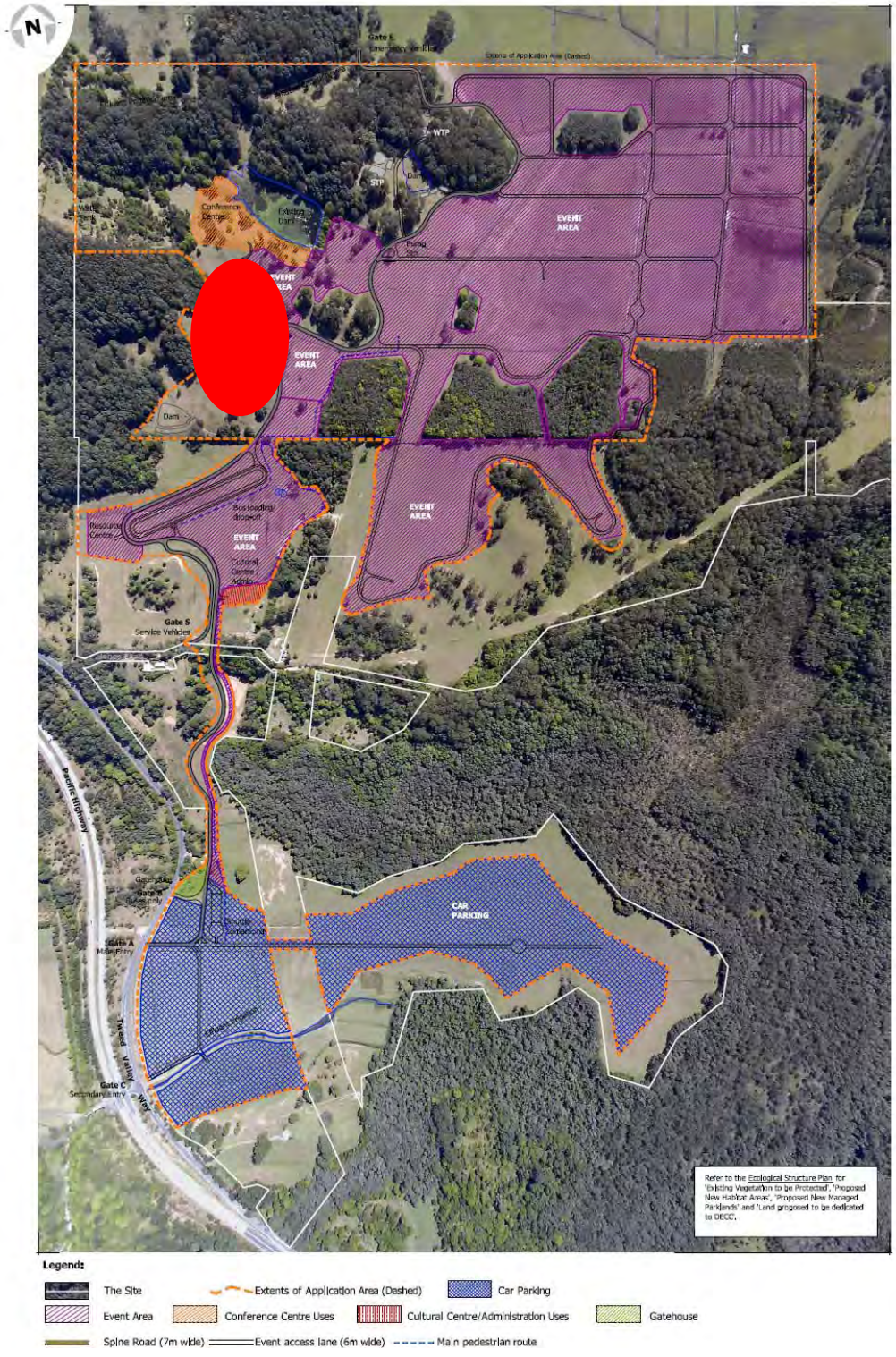


Figure 17: Flood Emergency Assembly Area

When the site is being set up for an event, where possible and safe to do so, all electrical equipment will be kept off the ground. Large immobile generators, where possible, will be located above the 1 in 100 flood level. This will reduce the risk of electrocution and ensure that lighting will be able to continue operating if a flood were to occur.

For events with a capacity of 60% a full triage of medical staff and resources, including the services of a Registered Doctor to provide a GP style clinic with nurses and medics and two on-site ambulances will be required. These will all be located close to the performance areas for medical reasons but will be moved adjacent to the flood emergency assembly area in the event of a Yellow Alert or above.

A 200,000 litre potable water storage tank will be permanently on site and be accessible from the flood emergency assembly area without the need to traverse any flooded areas. It will not be allowed to drop below 60,000 litres storage during an event unless a Red Alert - Take Refuge is called.

In that case it will be used for drinking water supplies for those sheltering on site and would be able to provide 2 litres of potable drinking water for each person which would be sufficient for 24hours. It will be used to fill two 10,000L tanks located at the base of the flood emergency assembly area. In addition there will be bottled water supplies which have been delivered for the event.

Temporary human waste facilities will be provided in a designated flood free area which is accessible from the flood emergency assembly area without the need for people to traverse floodwaters.

No waste facilities will be placed within the catchments of the two dams on site. This will enable water within these dams to be used for sanitation in the event of a flood. A pump, fuel supply and hose will be permanently on standby for this purpose.

For a 60% event there will be sufficient onsite food vendors, caterers and the Parklands General Store capable of providing meals to the entire event population for a period of up to 3 days without the need for restocking.

In particular, Event Producers will directly control both the General Store (which sells a wide provision of dry foods, basic medical suppliers and camping equipment (i.e. batteries and torches, etc).

5.4 TRAINING

Trigger for action: At Induction

Training in flood awareness and response procedures will be given to permanent Parklands staff, such as the Venue Manager and his/her immediately staff members. The Venue Manager and designated staff will be given specific training in weather and flood monitoring and will be responsible for escalating the levels of alert, warning and response as detailed in this plan

Flood awareness inductions would be provided to event managers as well as event specific staff including bump in/bump out crews, security, camp marshals, bar and food staff and cleaning crews.

For event staff this will be undertaken as part of the staff induction process which already exists for OH&S and environmental procedures.

5.5 FORECAST MONITORING

Trigger for action: From one week before bump in to end of event

Monitoring the weather forecasts will be the most important step in managing flood risk and response. Parklands management will nominate the Venue Manager for being responsible for reviewing weather, current and predicted rainfall, weather and flood warnings and stream levels, as outlined in Section 3.4.2.

When an event is scheduled and confirmed, the Venue Manager will begin monitoring the forecasts one week in advance to the commencement of the bump in. This monitoring will be continued daily throughout the bump-in stage, the event and the bump-out stage.

The frequency of monitoring will be commensurate with the alert level.

Normal and All Clear – White – daily monitoring

Flood Watch – Blue – hourly monitoring

Flood Warning/Evacuation/Take Refuge – Yellow/Orange/Red - continuous

5.6 COMMUNICATION WITH SES

Trigger for action: From one month before bump in to end of bump out

The Venue Manager will be responsible for advising the SES Local Controller of the dates and number or patrons for an event at least one month in advance of the event and will forward a copy of the Event Flood Management Plan including emergency contact details.

In the lead up to the event and during the event the Venue Manager will advise the SES Local Controller of any changes in the alert level.

The Venue Manager will consult with the SES Local Controller before escalating to Alert Levels Yellow or Red.

The Venue Manager will take advice and following directions from the SES Local Controller if given.

5.7 COMMUNICATION WITH EVENT PRODUCER

Trigger for action: bump out one week before bump in to end of event

The Venue Manager will be responsible for keeping the Event Producer informed of unfolding weather conditions and changes in alert levels.

The Venue Manager will consult with the Event Producer before escalating Alert Levels to Yellow or Red.

5.8 COMMUNICATION WITH STAFF, ARTISTS AND SUPPLIERS

Trigger for action: From one week before bump in to end of bump out

In the lead up to the event and during the event the Event Producer will advise staff and suppliers of any changes in the alert level and ensure they undertake the actions appropriate to that alert level.

5.9 COMMUNICATION WITH PATRONS

Trigger for action: ticket purchase

When patrons purchase tickets for events, information on the flood risk will be made available online or in hard copy so that patrons are aware of it. This will include information on the potential for cancelation of the event and evacuation if it is necessary, as well as general emergency awareness messages.

Trigger for action: Change in Flood Alert

Whenever there is a change in flood alert level the following will be used to communicate that change to patrons.

- Email ticket purchaser;
- Event website;
- Twitter to registered subscribers;
- Facebook/Myspace notifications;
- General media releases including radio coverage; and
- Where possible, the use of SMS notifications.

In addition, there will be means of communicating with patrons which is specific to a particular alert level as detailed in the relevant sections of this Plan.

6 MANAGEMENT ACTIONS – BLUE ALERT – FLOOD WATCH

The following are the specific actions which will be taken should any one of the thresholds in Table 3 be exceeded for escalation to Blue Alert – Flood Watch or the Venue Manager escalates to Blue Alert in light of other information.

The thresholds for Blue Alert are repeated in Table 4 for each phase of an event. They do not generally vary between phases other than where the duration of the forecast exceeds the duration of the phase. In the case of fallen rain however, a lower threshold is used during the event because this is the phase with the greatest potential flood consequences.

The flood management actions are set out in the following sections for each phase of the event.

6.1 BUMP IN

6.1.1 Forecast monitoring

The Venue Manager will monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and monitor conditions on site hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least once daily for a more detailed interpretation of forecasts. The Venue Manager will provide six hourly updates to the Event Producer or when there is a significant change in conditions.

6.1.2 Event modification

The Event Producer will consider whether modifications need to be made to the Event layout, activities or program to reduce risks to patrons, artists, assets or finances taking into consideration the relative timing of the potential flooding and the Event.

6.1.3 Communication with staff

The Event Producer will advise all event management personnel of the possibility of flooding and the steps to be undertaken if it does eventuate. This information will be communicated to the Security Manager, site and production managers, camping managers, food and market manager, bar manager, visual arts manager, staffing co-ordinator, external site manager, and the publicist. They will be advised of any changes to layout, activities or program.

These people will be responsible for communicating the information to their relevant staff members for each of the areas. They will also remind them of the staff responsibilities and procedures should the alert level escalate.

6.1.4 Communication with suppliers

The Event Producer will advise suppliers of the change in alert level and request them to develop contingency plans for timing of deliveries and Event set up should flooding disrupt bump in. They will be advised of any changes to layout, activities or program where that is relevant to them.

6.1.5 Communication with Artists

The Event Producer will advise artists of changes to the program or activities where that impacts on the artist.

6.2 DURING WEEK BEFORE THE EVENT

If a Blue Alert is called or in place during the week before the Event then the following actions will be taken in addition to those which occur during bump in.

6.2.1 Communication with patrons

In the case where the Blue Alert is in place when patrons are arriving onsite a few days before the event starts, small stickers which can be placed on car windows and/or flyers will be handed out to patrons camping on site

when they enter the grounds which will have information and advice on the flood risks and the steps to follow if it does occur. A suggested outline of the content of this sticker/information resource is provided in Appendix A.

During Blue Alert patrons will be advised to have a designated driver who is capable of driving within 12 hours of the Blue Alert being called if they are already on site or at short notice if they are arriving on site. All patrons will be asked to remain in a state in which they would be able to pack and safely leave at short notice.

6.3 DAY BEFORE THE EVENT

If a Blue Alert is called or in place on the day before the Event then the following actions will be taken in addition to those which occur during bump in.

6.3.1 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that there is a possibility of flooding and re-iterating the possibilities of event cancellation. It will also contain information on what to do should flooding occur during the event. Any major changes to the program or activities will be described.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the possibility of flooding and directing them to their ticket purchase conditions and the Event website for further details.

b) Patrons on Site

In the case where the Blue Alert is in place when patrons are arriving onsite or are already on site, small stickers which can be placed on car windows and/or flyers will be handed out to patrons camping on site when they enter the grounds which will have information and advice on the flood risks and the steps to follow if it does occur. A suggested outline of the content of this sticker/information resource is provided in Appendix A.

The camp marshals who are in charge of discrete predefined camping zones will ensure that appropriate signage and information is ready for camping patrons.

6.3.2 Communication with artists

The Event Producer will advise artists of the possibility of flooding and what they will need to do in the event of a flood.

6.4 DURING THE EVENT

If a Blue Alert is called or in place during the Event then the following actions will be taken.

6.4.1 Forecast monitoring

The Venue Manager will monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and monitor conditions on site hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least once daily for a more detailed interpretation of forecasts. The Venue Manager will provide six hourly updates to the Event Producer or when there is a significant change in conditions.

6.4.2 Event modification

The Event Producer will consider whether modifications need to be made to the activities or program to reduce risks to patrons, artists, assets or finances.

6.4.3 Communication with staff

The Event Producer will advise all event management personnel of the possibility of flooding and the steps to be undertaken if it does eventuate. This information will be communicated to the Security Manager, site and production managers, camping managers, food and market manager, bar manager, visual arts manager, staffing co-ordinator, external site manager, and the publicist. They will be

advised of any changes to layout, activities or program.

These people will be responsible for communicating the information to their relevant staff members for each of the areas. They will also remind them of the staff responsibilities and procedures should the alert level escalate.

6.4.4 Communication with suppliers

The Event Producer will advise suppliers of any changes to their deliveries due to change in activities or program.

6.4.5 Communication with Artists

The Event Producer will advise artists of changes to the program or activities where that impacts on the artist.

6.4.6 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that there is a possibility of flooding and re-iterating the possibilities of event cancellation. It will also contain information on what to do should flooding occur during the event. Any major changes to the program or activities will be described.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the possibility of flooding and directing them to their ticket purchase conditions and the Event website for further details.

b) Patrons on Site

In the case where the Blue Alert is in place when patrons are arriving onsite or are already on site, small stickers which can be placed on car windows and/or flyers will be handed out to patrons camping on site when they enter the grounds which will have information and advice on the flood risks and the steps to follow if it does occur. A suggested outline of the content of this sticker/information resource is provided in Appendix A.

The camp marshals who are in charge of discrete predefined camping zones will ensure that appropriate signage and information is ready for camping patrons.

6.5 BUMP OUT

6.5.1 Forecast monitoring

The Venue Manager will monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and monitor conditions on site hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least once daily for a more detailed interpretation of forecasts. The Venue Manager will provide six hourly updates to the Event Producer or when there is a significant change in conditions.

6.5.2 Communication with staff

The Event Producer will advise all event management personnel of the possibility of flooding and the steps to be undertaken if it does eventuate. This information will be communicated to the Security Manager, site and production managers, staffing co-ordinator, and external site manager These people will be responsible for communicating the information to their relevant staff members for each of the areas. They will also remind them of the staff responsibilities and procedures should the alert level escalate during bump out.

6.5.3 Communication with suppliers

The Event Producer will advise suppliers of the change in alert level and request them to develop contingency plans should flooding disrupt bump out.

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Table 4: Blue Alert Thresholds by Event Phase

Forecast/Observation	Bump in	During Week Before	Day Before	Day 1 or 2	Final Day	Bump Out
8 days forecast	>300mm	>300mm	NA	NA	NA	>300mm
4 days forecast	>150mm	>150mm	>150mm	>300mm	NA	>150mm
24 hour forecast	>50mm	>50mm	>50mm	>50mm	>50mm	>50mm
Flood warnings	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES	Flood Watch, Severe Weather Warning or Flood Warnings from BOM/SES
Radar	Moderate or heavy after >100mm in 24hrs	Moderate or heavy after >100mm in 24hrs	Moderate or heavy after >50mm in 24hrs	Moderate or heavy after >50mm in 24hrs	Moderate or heavy after >50mm in 24hrs	Moderate or heavy after >100mm in 24hrs
Fallen rain in 24 hours	>100mm plus more forecast	>100mm plus more forecast	>50mm plus more forecast	>50mm plus more forecast	>50mm plus more forecast	>100mm plus more forecast
Stream gauge readings	Crabbes Creek Xm and rising Bilinudgel Creek Xm and rising Lacks Creek Xm and rising	Crabbes Creek Xm and rising Bilinudgel Creek Xm and rising Lacks Creek Xm and rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising
Water on site	100mm anywhere on site	100mm anywhere on site	100mm anywhere on site	100mm anywhere on site	100mm anywhere on site	100mm anywhere on site
External Roads	Any local roads cut by floodwaters	Any local roads cut by floodwaters	Any local roads cut by floodwaters	Any local roads cut by floodwaters	Any local roads cut by floodwaters	Any local roads cut by floodwaters

7 MANAGEMENT ACTIONS – YELLOW ALERT – FLOOD WARNING

The following are the specific actions which will be taken should any one of the thresholds in Table 3 be exceeded for escalation to Yellow Alert – Flood Warning or the Venue Manager escalates to Yellow Alert in light of other information.

The thresholds for Yellow Alert are repeated in Table 5 for each phase of an event. They vary significantly between bump in, bump out and when campers are on site before and during the event because in the absence of campers, the time to evacuate the site is much less and the consequence of failing to evacuate are much less significant. Therefore during the event the thresholds for flood warning are generally lower than for bump in and bump out.

The flood management actions are set out in the following sections for each phase of the event.

7.1 BUMP IN

7.1.1 Forecast monitoring

The Venue Manager will continually monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and check site and road conditions at least hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least twice daily for a more detailed interpretation of forecasts. The Venue Manager will provide hourly updates to the Event Producer or when there is a significant change in conditions.

7.1.2 Event modification

The Event Producer will consider whether modifications need to be made to the Event layout, activities or program to reduce risks to patrons, artists, assets or finances taking into consideration the relative timing of the potential flooding and the Event.

7.1.3 Communication with staff

The Event Producer will advise all event management personnel of the escalated Flood Alert level and remind them of the steps to be undertaken at this alert level and higher levels

This information will be communicated to the Security Manager, site and production managers, camping managers, food and market manager, bar manager, visual arts manager, staffing co-ordinator, external site manager, and the publicist. They will be advised of any changes to layout, activities or program.

These people will be responsible for communicating the information to their relevant staff members for each of the areas. They will also remind them of the staff responsibilities and procedures should the alert level escalate.

7.1.4 Communication with suppliers

The Event Producer will advise suppliers of the change in alert level and request them to develop contingency plans for timing of deliveries and Event set up should flooding disrupt bump in. They will be advised of any changes to layout, activities or program where that is relevant to them.

They will be requested to temporarily move as many of the supplies as is practical to flood free locations.

7.1.5 Communication with Artists

The Event Producer will advise artists of changes to the program or activities where that impacts on the artist.

7.2 DURING WEEK BEFORE THE EVENT

If a Yellow Alert is called or in place during the week before the Event then the following actions will be taken in addition to those which occur during bump in.

7.2.1 Serving of Alcohol

Serving of all alcohol will cease.

7.2.2 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that there is a possibility of flooding and re-iterating the possibilities of event cancellation. It will also contain information on what to do should flooding occur during the event. Any major changes to the program or activities will be described.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the possibility of flooding and directing them to their ticket purchase conditions and the Event website for further details.

b) Patrons Arriving at Site

In the case where the Yellow Alert is in place when patrons are arriving onsite a few days before the event starts, small stickers which can be placed on car windows and/or flyers will be handed out to patrons camping on site when they enter the grounds which will have information and advice on the flood risks and the steps to follow if it does occur. A suggested outline of the content of this sticker/information resource is provided in Appendix A.

They will be welcome to park their vehicles on site and sleep in their vehicles but they will not be permitted to erect tents.

They will be advised to keep themselves in a state of mental alertness so that they are able to safely evacuate at short notice if required.

c) Patrons already on Site

The camp marshals who are in charge of discrete predefined camping zones will ensure that appropriate signage and information is ready for camping patrons.

They will advise those who are already camping that they need to pack up their tents immediately and stay with their vehicles. They will distribute small stickers which can be placed on car windows and/or flyers with advice on what to do in the event of a flood although these people should have already received these when a Blue Alert was called.

7.2.3 Communication with artists

The Event Producer will advise artists of the possibility of flooding and what they will need to do in the event of a flood when they are performing.

7.3 DAY BEFORE THE EVENT

7.3.1 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that there is a possibility of flooding and re-iterating the possibilities of event cancellation. It will also contain information on what to do should flooding occur during the event. Any major changes to the program or activities will be described.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the possibility of flooding and directing them to their ticket purchase conditions and the Event website for further details.

A media release will be issued and publicist will be available for radio interviews.

b) Patrons on Site

In the case where the Yellow Alert is in place when patrons are arriving onsite or are already on site, small stickers which can be placed on car windows and/or flyers will be handed out to patrons camping on site when they enter the grounds which will have information and advice on the flood risks and the steps to follow if it does occur. A suggested outline of the content of this sticker/information resource is provided in Appendix A.

7.4 DURING THE EVENT

If a Yellow Alert is called during the Event then the following actions will be taken.

7.4.1 Forecast monitoring

The Venue Manager will continually monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and check site and road conditions at least hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least twice daily for a more detailed interpretation of forecasts. The Venue Manager will provide hourly updates to the Event Producer or when there is a significant change in conditions.

7.4.2 Communication with staff

The Event Producer will advise all event management personnel of the escalation to Yellow Alert. This information will be communicated to the Security Manager, site and production managers, camping managers, food and market manager, bar manager, visual arts manager, staffing co-ordinator, external site manager, and the publicist. They will be advised of any changes to activities in addition to those which will be stopped or modified as part of the standard Yellow Alert procedures.

These people will be responsible for communicating the information to their relevant staff members for each of the areas and direct them to take actions in accordance with the Event Flood Management Plan for Yellow Alert.

They will also remind them of the staff responsibilities and procedures should the alert level escalate.

7.4.3 Event modification

Performances will cease.

The Event Producer will consider whether other activities need to cease or be modified to reduce risks to patrons, artists, assets or finances.

If the Yellow Alert thresholds are exceeded for more than four hours the Event Producer should discuss with the Venue Manager the merits of escalating to Orange Alert or even Black Alert because it is not safe to recommence Event activities with this level of flood risk.

7.4.4 Serving of Alcohol

Serving of all alcohol will cease.

7.4.5 Relocation or Modification of Assets

Internal fencing will be opened up to facilitate rapid return of patrons to their vehicles.

The medical facilities will be relocated to a designated area adjacent to the Flood Emergency Assembly Area.

Bottled water supplies and food supplies will be relocated to above the Flood Emergency Assembly Area.

There will be around 100,000 bottles of 600ml water onsite. In addition, the two 10,000L tanks located at the base of the Flood Emergency Assembly Area will be filled from the main 200,000L main potable water supply tank.

Food stall holders will move their trailers or relocate their vans to a flood free area safely accessible from the Flood Emergency Assembly Area.

As many waste and recycling receptacles as possible will be moved to the designated flood emergency waste management area.

All fuel stored on site will be moved to locations which are flood free.

Mobile generators and lighting systems will be relocated as necessary to aid evacuation. This will include floodlighting of the camping grounds at night to assist people in packing up.

Temporary power, a public address system and lighting equipment will be set up at the Flood Emergency Assembly Area. Spare resources such as torches, batteries and communication devices will be moved to this location. Any sound or lighting equipment

which is below the 1 in 100 flood level will be moved to a higher location if practical.

7.4.6 Communication with suppliers

The Event Producer will advise suppliers to cease deliveries until further notice and remove any of their wastes if they have a responsibility to do so and it is practical to do so in the time available.

7.4.7 Communication with Artists

The Event Producer will advise artists to pack up their equipment. Those who have to leave for other engagements will be advised to do so. Modifications to the program will be discussed with the other artists who have more flexibility in their schedule.

7.4.8 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that there is a flood warning and the site is temporarily closed and re-iterating the possibilities of event cancellation. It will also contain information on what to do should flooding occur. Any major changes to the program or activities will be described.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the possibility of flooding and directing them to their ticket purchase conditions and the Event website for further details.

A media release will be issued and publicist will be available for radio interviews.

Electronic message boards which are located on the roads 20km either side of the event will be used to advise travellers of the flood warning and temporary site closure.

b) Patrons arriving at Site

Any patrons who arrive at the Site during a Yellow Alert will be advised of the Flood Warning and asked to leave and return when the All Clear is given or the Alert level returns to Blue Alert.

c) Patrons on Site

Patrons will be requested to return to their vehicles to await further instructions. If they are camping they will be requested to pack up their tents and camping equipment. Patrons may leave if they wish unless the SES has directed that they not do so.

The Venue Manager will monitor the myroadsinfo website and confer with the SES to check whether external roads between the site and the Pacific Highway are cut by flooding. If the Venue Manager is aware of any roads which have been blocked by flooding he/she is obliged to pass that advice on to all patrons.

The site public address system, large video screens and variable message signage around the site will be used to communicate Yellow Alert instructions to patrons. It will include the standard SES advice not to walk, drive or ride through floodwaters.

The camp marshals who are in charge of discrete, predefined camping zones will ensure that appropriate signage and information is ready for camping patrons. They will visit each camping site to ensure that all patrons are aware of the Yellow Alert.

Police and security personnel will be responsible for ensuring that patrons return to their vehicles in an orderly manner.

7.5 BUMP OUT

7.5.1 Forecast monitoring

The Venue Manager will continually monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and check site conditions at least hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least twice daily for a more detailed interpretation of forecasts. The Venue Manager will provide hourly updates to the Event Producer or if the situation changes.

7.5.2 Communication with staff and suppliers

The Event Producer will advise all event management personnel of the escalated alert to Yellow Alert and the possibility of flooding. They will be reminded of the steps to be undertaken immediately and of the additional steps should flooding eventuate. This information will be communicated to the Security Manager, site and production managers, staffing co-ordinator, and external site manager These people will be responsible for communicating the information to their relevant staff members for each of the areas. They will also remind them of the staff responsibilities and procedures should the alert level escalate during bump out.

The Event Producer will advise suppliers of the change in alert level and request them to develop contingency plans should flooding disrupt bump out.

7.5.3 Reschedule Activities

Where possible, bump out activities will be rescheduled to accelerate the removal of flood-vulnerable assets from the areas at risk of flooding.

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Table 5: Yellow Alert Thresholds by Event Phase

Forecast/Observation	**Bump in**	**During Week Before**	**Day Before**	**Day 1 or 2**	**Final Day**	**Bump Out**
24 hour forecast	>250mm	>250mm	>200mm	>150mm	>200mm	>250mm
Flood warnings	Directive from SES	Directive from SES	Flood Warning from BOM/SES	Flood Warning from BOM/SES	Evacuation directive from SES	Directive from SES
Radar	Heavy after >175mm in 24hrs	Heavy after >175mm in 24hrs	Heavy after >150mm in 24hrs	Heavy after >150mm in 24hrs	Heavy after >150mm in 24hrs	Heavy after >175mm in 24hrs
Fallen rain in 24 hours	>150mm plus >75mm forecast or >200mm fallen	>150mm plus >75mm forecast or >200mm fallen	>125mm plus >75 forecast or >175mm fallen	>125mm plus >75 forecast or >175mm fallen	>125mm plus >75 forecast or >175mm fallen	>150mm plus >75mm forecast or >200mm fallen
Stream gauge readings	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising
Water on site	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 100mm depth in areas being used

8 MANAGEMENT ACTIONS – ORANGE ALERT – EVACUATION

The following are the specific actions which will be taken should any one of the thresholds in Table 3 be exceeded for escalation to Orange Alert – Flood Evacuation or the Venue Manager escalates to Orange Alert in light of other information.

The thresholds for Orange Alert are repeated in Table 6 for each phase of an event. They vary significantly between bump in, bump out and when campers are on site before and during the event because in the absence of campers, the time to evacuate the site is much less and the consequence of failing to evacuate are much less significant. Therefore during the event the thresholds for evacuation are generally lower than for bump in and bump out.

The flood management actions are set out in the following sections for each phase of the event.

8.1 BUMP IN

8.1.1 Forecast monitoring

The Venue Manager will continually monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and check site and road conditions at least hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least twice daily for a more detailed interpretation of forecasts. The Venue Manager will provide hourly updates to the Event Producer or when there is a significant change in conditions.

8.1.2 Event modification

The Event Producer will consider whether modifications need to be made to the Event layout, activities or program to reduce risks to patrons, artists, assets or finances taking into consideration the relative timing of the potential flooding and the Event.

8.1.3 Communication with staff

The Event Producer will advise all event management personnel of the escalated Flood Alert level and remind them of the steps to be undertaken at this alert level.

This information will be communicated to the Security Manager, site and production managers, camping managers, food and market manager, bar manager, visual arts manager, staffing co-ordinator, external site manager, and the publicist. They will be advised of any changes to layout, activities or program.

They will be reminded that they need to evacuate the site when their roles in the evacuation are complete.

These people will be responsible for communicating the information to their relevant staff members for each of the areas.

8.1.4 Communication with suppliers

The Event Producer will advise suppliers of the change in alert level and request them to develop contingency plans for timing of deliveries and Event set up should flooding disrupt bump in. They will be advised of any changes to layout, activities or program where that is relevant to them.

They will be requested to cease activity on site, evacuate staff and stop all deliveries until the flood alert drops to Yellow, Blue or White .

8.1.5 Communication with Artists

The Event Producer will advise artists of changes to the program or activities where that impacts on the artist.

8.2 DURING WEEK BEFORE THE EVENT

If an Orange Alert is called or in place during the week before the Event then the following

actions will be taken in addition to those which occur during bump in.

8.2.1 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that the site has been temporarily closed because of a high likelihood of flooding and re-iterating the possibilities of event cancellation. It will also contain information on what to do should flooding occur during the event. Any major changes to the program or activities will be described.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the possibility of flooding and directing them to their ticket purchase conditions and the Event website for further details.

A media release will be issued and publicist will be available for radio interviews.

Electronic message boards which are located on the roads 20km either side of the event will be used to advise travellers of the evacuation and temporary site closure.

b) Patrons arriving at Site

Any patrons who arrive at the Site during an Orange Alert will be advised of the Flood Evacuation and be asked to leave and return when the All Clear is given or the Alert level returns to Blue Alert.

c) Patrons already on Site

The camp marshals who are in charge of discrete predefined camping zones will advise patrons in their zone to leave when instructed to do so.

The site public address system, large video screens and variable message signage around the site will be used to communicate Yellow Alert instructions to patrons. It will include the standard SES advice not to walk, drive or ride through floodwaters.

Police, traffic marshals and security personnel will be responsible for ensuring that patrons drive out in an orderly manner.

8.2.2 Communication with artists

The Event Producer will advise artists to leave the site.

8.3 DURING THE EVENT

If an Orange Alert is called during the Event then the following actions will be taken.

8.3.1 Forecast monitoring

The Venue Manager will continually monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and check site and road conditions at least hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least twice daily for a more detailed interpretation of forecasts. The Venue Manager will provide hourly updates to the Event Producer or when there is a significant change in conditions.

8.3.2 Communication with staff

The Event Producer will advise all event management personnel of the escalation to Orange Alert. This information will be communicated to the Security Manager, site and production managers, camping managers, food and market manager, bar manager, visual arts manager, staffing co-ordinator, external site manager, and the publicist.

These people will be responsible for communicating the information to their relevant staff members for each of the areas and direct them to take actions in accordance with the Event Flood Management Plan for Orange Alert.

8.3.3 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that the site has been temporarily closed because of a high likelihood of flooding and re-iterating the possibilities of event cancellation. It will also contain information on what to do should flooding occur during the event. Any major changes to the program or activities will be described.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the possibility of flooding and directing them to their ticket purchase conditions and the Event website for further details.

A media release will be issued and publicist will be available for radio interviews.

Electronic message boards which are located on the roads 20km either side of the event will be used to advise travellers of the evacuation and temporary site closure.

b) Patrons arriving at Site

Any patrons who arrive at the Site during an Orange Alert will be advised of the Flood Evacuation and be asked to leave and return when the All Clear is given or the Alert level returns to Blue Alert.

c) Patrons already on Site

The camp marshals who are in charge of discrete predefined camping zones will advise patrons in their zone to leave when instructed to do so, the order in which evacuation will take place and the indicative timing of evacuation.

The site public address system, large video screens and variable message signage around the site will be used to communicate Orange Alert instructions to patrons. It will include the standard SES advice not to walk, drive or ride through floodwaters.

Police, traffic marshals and security personnel will be responsible for ensuring that patrons drive out in an orderly manner.

8.3.4 Serving of Alcohol

Serving of all alcohol will cease.

8.3.5 Directing of Vehicles

Vehicles in the Southern Car Park will be directed to exit via the main gate and head south. Traffic marshals will direct vehicles in the lowest parts of the carpark to leave first.

Vehicles in the Central carpark and the camping grounds will exit via Gate S onto Jones Road and head north on Tweed Valley Way. Camp marshals shall direct vehicles at the farthest end of the camping ground to exit first.

All access tracks within the camping ground will have reflective guideposts where they cross drainage lines and will be strung with overhead lights. The spine road will have reflective posts along both sides for its full length. These measures will reduce the risk of vehicles accidentally leaving the road.

Should vehicles become bogged they will be towed out by the tow trucks on site. Should vehicles break down they will be manually pushed off the road so as not to block the evacuation of other traffic.

Return lanes on the Tweed Valley Way and along the spine road will be kept clear for emergency vehicles.

8.3.6 Communication with suppliers

The Event Producer will advise suppliers to cease deliveries until further notice and remove any of their wastes if they have a responsibility to do so and it is practical to do so in the time available.

8.3.7 Communication with Artists

The Event Producer will advise artists to leave the site.

8.4 BUMP OUT

8.4.1 Forecast monitoring

The Venue Manager will continually monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and check site and road conditions at least hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least twice daily for a more detailed interpretation of forecasts. The Venue Manager will provide hourly updates to the Event Producer or if the situation changes.

8.4.2 Communication with staff and suppliers

The Event Producer will advise all event management personnel to leave the site. This information will be communicated to the Security Manager, site and production managers, staffing co-ordinator, and external site manager These people will be responsible for communicating the information to their relevant staff members for each of the areas.

The Event Producer will advise suppliers of the change in alert level and request them to leave the site until further notice.

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Table 6: Orange Alert Thresholds by Event Phase

Forecast/Observation	**Bump in**	**During Week Before**	**Day Before**	**Day 1 or 2**	**Final Day**	**Bump Out**
24 hour forecast	>275mm	>275mm	>250mm	>200mm	>200mm	>275mm
Flood warnings	Directive from SES	Directive from SES	Flood Warning from BOM/SES	Flood Warning from BOM/SES	Directive from SES	Directive from SES
Radar	Heavy after >225mm in 24 hrs	Heavy after >225mm in 24 hrs	Heavy after >200mm in 24 hrs	Heavy after >200mm in 24 hrs	Heavy after >200mm in 24 hrs	Heavy after >275mm in 24hrs
Fallen rain in 24 hours	>200mm plus 75mm forecast or >250mm fallen	>200mm plus 75mm forecast or >250mm fallen	>175mm plus >75mm forecast or >225mm fallen	>175mm plus >75mm forecast or >225mm fallen	>175mm plus >75mm forecast or >225mm fallen	>200mm plus >75mm forecast or >250mm fallen
Stream gauge readings	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising
Water on site	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 100mm depth in areas being used	More than 200mm depth in areas being used

9 MANAGEMENT ACTIONS – RED ALERT – REFUGE

The following are the specific actions which will be taken should any one of the thresholds in Table 3 be exceeded for escalation to Red Alert – Flood Evacuation or the Venue Manager escalates to Red Alert in light of other information.

The thresholds for Red Alert are repeated in Table 7 for each phase of an event. They vary little between bump in, bump out and when campers are on site because they are dictated by an evacuation being prevented by rising water levels.

The flood management actions are set out in the following sections for each phase of the event.

9.1 BUMP IN

9.1.1 Forecast monitoring

The Venue Manager will continually monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and check site and road conditions at least hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least twice daily for a more detailed interpretation of forecasts. The Venue Manager will provide hourly updates to the Event Producer or when there is a significant change in conditions.

9.1.2 Communication with staff

The Event Producer will advise all event management personnel of the escalated Flood Alert level and remind them of the steps to be undertaken at this alert level.

This information will be communicated to the Security Manager, site and production managers, camping managers, food and market manager, bar manager, visual arts manager, staffing co-ordinator, external site manager.

They will be reminded that they need to the Flood Evacuation Assembly area when their roles in getting people and equipment safely out of the floodwaters is complete.

These people will be responsible for communicating the information to their relevant staff members for each of the areas.

Everyone will make their way to the Flood Emergency Assembly Area. It is most unlikely this will be necessary during bump out because the number of vehicles and people involved means that there should be sufficient time to evacuate the site, particularly since there will be many trucks amongst these vehicles which can drive through deeper floodwater than can a car.

9.2 DURING WEEK BEFORE THE EVENT

If Red Alert is called or in place during the week before the Event then the following actions will be taken in addition to those which occur during bump in.

9.2.1 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that the site has been temporarily closed because of a high likelihood of flooding and re-iterating the possibilities of event cancellation. It will also contain information on what to do should flooding occur during the event. Any major changes to the program or activities will be described.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the possibility of flooding and directing them to their ticket purchase conditions and the Event website for further details.

A media release will be issued and publicist will be available for radio interviews.

Electronic message boards which are located on the roads 20km either side of the event will

be used to advise travellers of the evacuation and temporary site closure.

b) Patrons arriving at Site

Any patrons who arrive at the Site during a Red Alert will be advised of the temporary site closure and be asked to leave and return when the All Clear is given or the Alert level returns to Blue Alert.

c) Patrons already on Site

The traffic marshals, police and security personnel will advise patrons to exit their vehicles, take whatever possessions they can carry and feel that they need, leave the vehicle where it is and walk directly to the Flood Emergency Evacuation Area.

The site public address system, large video screens and variable message signage around the site will be used to communicate Red Alert instructions to patrons. It will include the standard SES advice not to walk, drive or ride through floodwaters.

The spine road and pedestrian walkway between the event area and the car park will both be above the 1 in 100 flood level and so it is unlikely that anyone should have to walk through floodwaters.

Patrons camping have a 600-700m walk to high ground, even at an extremely slow pace of 2km/hr; the walk will take only about 15 mins from the farthest location on the site.

9.2.2 Catering at Evacuation Area

The medical facilities, lighting, public address system, water, food and waste receptacles will have been moved to the Flood Emergency Assembly Area during the Yellow and Orange Alert Phases. Additional food can be sourced from the general store which effectively is an on-site supermarket with very large dry foods holdings. No alcohol will be provided.

The water in the farm dams will be used for personal hygiene and a temporary area for toileting will be provided outside of the catchment of the farm dams and the Flood Emergency Assembly Area.

There will be no shelter available but at this stage of the event there would be enough space to erect tents because of the small number of people in total who would be on site and the large proportion who are likely to be able to leave before the site floods.

There will be a cleared area in which a helicopter can land in case of a medical emergency which cannot be managed by the triage unit.

9.3 DURING THE EVENT

If a Red Alert is called during the Event then the following actions will be taken.

9.3.1 Forecast monitoring

The Venue Manager will continually monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and check site and road conditions at least hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least twice daily for a more detailed interpretation of forecasts. The Venue Manager will provide hourly updates to the Event Producer or when there is a significant change in conditions.

9.3.2 Communication with staff

The Event Producer will advise all event management personnel of the escalated Flood Alert level and remind them of the steps to be undertaken at this alert level.

This information will be communicated to the Security Manager, site and production managers, camping managers, food and market manager, bar manager, visual arts manager, staffing co-ordinator, external site manager.

They will be reminded that they need to the Flood Evacuation Assembly area when their roles in getting people and equipment safely out of the floodwaters is complete.

These people will be responsible for communicating the information to their relevant staff members for each of the areas.

9.3.3 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that the site has been temporarily closed because of a high likelihood of flooding and re-iterating the possibilities of event cancellation. It will also contain information on what to do should flooding occur during the event. Any major changes to the program or activities will be described.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the possibility of flooding and directing them to their ticket purchase conditions and the Event website for further details.

A media release will be issued and publicist will be available for radio interviews.

Electronic message boards which are located on the roads 20km either side of the event will be used to advise travellers of the evacuation and temporary site closure.

b) Patrons arriving at Site

Any patrons who arrive at the Site during a Red Alert will be advised of the temporary site closure and be asked to leave and return when the All Clear is given or the Alert level returns to Blue Alert.

c) Patrons already on Site

The traffic marshals, police and security personnel will advise patrons to exit their vehicles, take whatever possessions they can carry and feel that they need, leave the vehicle where it is and walk directly to the Flood Emergency Evacuation Area . .

The site public address system, large video screens and variable message signage around the site will be used to communicate Red Alert instructions to patrons. It will include the standard SES advice not to walk, drive or ride through floodwaters.

The spine road and pedestrian walkway between the event area and the car park will both be above the 1 in 100 flood level and so it is unlikely that anyone should have to walk through floodwaters.

Patrons camping have a 600-700m walk to high ground, even at an extremely slow pace of 2km/hr; the walk will take only about 15 mins from the farthest location on the site.

9.3.4 Catering at Evacuation Area

The medical facilities, lighting, public address system, water, food and waste receptacles will have been moved to the Flood Emergency Assembly Area during the Yellow and Orange Alert Phases. Additional food can be sourced from the general store which effectively is an on-site supermarket with very large dry foods holdings. No alcohol will be provided.

The water in the farm dams will be used for personal hygiene and a temporary area for toileting will be provided outside of the catchment of the farm dams and the Flood Emergency Assembly Area.

There will be no shelter available and there will be insufficient space for people to erect tents if all the people from a large event have been unable to evacuate. This is not likely because it will take a few hours for floodwaters to reach a level on site which would prevent driving off site in which time many people will have been able to leave.

There will be a cleared area in which a helicopter can land in case of a medical emergency which cannot be managed by the triage unit.

9.4 BUMP OUT

9.4.1 Forecast monitoring

The Venue Manager will continually monitor forecasts, warnings and rainfall/stream gauges mentioned in Section 3.7 and check site and road conditions at least hourly. The Venue Manager will contact the NSW Regional Duty forecaster at the Bureau of Meteorology at least twice daily for a more detailed interpretation of forecasts. The Venue Manager will provide hourly updates to the Event Producer or if the situation changes.

9.4.2 Communication with staff and suppliers

The Event Producer will advise all event management personnel that it is not possible to leave the site. This information will be communicated to the Security Manager, site and production managers, staffing co-ordinator, and external site manager These people will be responsible for communicating the information to their relevant staff members for each of the areas.

Everyone will make their way to the Flood Emergency Assembly Area. It is most unlikely this will be necessary during bump out because the number of vehicles and people involved means that there should be sufficient time to evacuate the site, particularly since there will be many trucks amongst these vehicles which can drive through deeper floodwater than can a car.

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Table 7: Red Alert Thresholds by Event Phase

Forecast/Observation	**Bump in**	**During Week Before**	**Day Before**	**Day 1 or 2**	**Final Day**	**Bump Out**
Flood warnings	Directive from SES	Directive from SES	Directive from SES	Directive from SES	Directive from SES	Directive from SES
Stream gauge readings	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising
Water on site	More than 200mm depth in areas being used	More than 200mm depth in areas being used	More than 200mm depth in areas being used	More than 200mm depth in areas being used	More than 200mm depth in areas being used	More than 300mm depth in areas being used
External Roads	North and South Cut and Orange Alert threshold readc3ed	North and South Cut and Orange Alert threshold r3adched	North and South Cut and Orange Alert threshold rea3ched	North and South Cut and Orange Alert threshold rea3ched	North and South Cut and Orange Alert threshold read3hed	North and South Cut and Orange Alert threshold reached

10 MANAGEMENT ACTIONS – BLACK ALERT - CANCELLATION

The following are the specific actions which will be taken should any one of the thresholds in Table 3 be exceeded for escalation to Black Alert – Cancellation or the Event Producer escalates to Black Alert in light of other information.

The thresholds for Black Alert are repeated in Table 8 for each phase of an event. They do not apply in bump out and because a cancellation decision is unlikely to be made more than a week out from the event, bump in has not been given a separate set of thresholds.

The cancellation decision will be made by the Event Producer in consultation with the Venue Manager and the SES. The SES may direct that an event be cancelled because of flood risks.

When a cancellation decision has been made the actions which are taken are similar irrespective of which phase of the event that decision has been made.

Most revolve around communicating the decision to the relevant people.

10.1.1 Communication with staff

The Event Producer will advise all event management personnel that the event has been cancelled and remind them of the steps to be undertaken in these circumstances.

This information will be communicated to the Security Manager, site and production managers, camping managers, food and market manager, bar manager, visual arts manager, staffing co-ordinator, external site manager and publicist.

These people will be responsible for communicating the information to their relevant staff members for each of the areas and ensuring that all cancelation tasks are completed.

10.1.2 Communication with Suppliers

All suppliers will be advise that the event has been cancelled. Deliveries will cease and those things which have been delivered to site which can be taken back by the suppliers will be taken back. Any event infrastructure which has been assembled will be dismantled and removed.

10.1.3 Communication with artists

Artists will be advised by the Event Producer that the Event has been cancelled.

10.1.4 Communication with patrons

a) Patrons off Site

The Event website, Facebook and Myspace pages will be updated with information advising that the site has been cancelled because of flood risks.

Email alerts will be sent to ticket purchasers and Facebook and Myspace notifications and Twitter messages sent to subscribers advising of the cancellation and directing them to their ticket purchase conditions and the Event website for further details.

A media release will be issued and publicist will be available for radio interviews. Electronic message boards which are located on the roads 20km either side of the event will be used to advise travellers of the cancellation.

b) Patrons arriving at Site

Any patrons who arrive at the Site will be advised that the event has been cancelled.

c) Patrons already on Site

The traffic marshals, security personnel and camp marshals will advise patrons that the event has been cancelled and that they are to leave the site immediately. The site public address system, large video screens and variable message signage around the site will be used to communicate this message and instructions to patrons. It will include the standard SES advice not to walk, drive or ride through floodwaters.

Table 8: Black Alert Thresholds by Event Phase

Forecast/Observation	**During Week Before**	**Day Before**	**Day 1 or 2**	**Final Day**
4 Days forecast	>500mm including the event days	NA	NA	NA
24 hour forecast	NA	> 400mm	300mm rain	NA
Flood warnings	Directive from SES	Directive from SES	Directive from SES	Directive from SES
Fallen rain in 24 hours	NA	> 300mm	250mm rain	250mm rain
Stream gauge readings	NA	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising	Crabbes Creek >Xm or rising Bilinudgel Creek >Xm or rising Lacks Creek Xm or rising
Water on Site	NA	More than 300mm depth in areas being used	More than 300mm depth in areas being used	More than 300mm depth in areas being used

11 MANAGEMENT ACTIONS – AFTER FLOODING

11.1 RECOVERY STRATEGIES

11.1.1 Immediately after the flood

After a flood, the following steps will be taken.

a) Patrons who have remained on site

1. If their vehicles are loaded and can be driven off site they will be directed to do so immediately
2. If their vehicles are loaded but cannot be immediately driven off site they will be given assistance (towing, roadside assistance) to get the vehicle off site
3. If they have possessions other than motor vehicles which they wish to retrieve from the flood affected area they will be given one hour to do so after the area has been assessed by the Venue Manager as being clear of floodwaters and other hazards
4. If they have motor vehicles which have flooded they will be permitted to remove any possession from the vehicle in accordance with 3 above. Their details and the vehicle details will be recorded by the event Security Manager and arrangements made for the removal of all such vehicles by a transport contractor to a designated holding yard for later collection
5. Any person who does not have transport to leave the site will be bussed to a transport hub (airport, railway station or bus station) of the Event Producer's choosing and the cost of transport to a point from which the patron has transport will be borne by the Event.

b) Artists who have remained on site

1. Artists will be permitted to collect any equipment which they have on site and will be asked to leave the site as soon as possible if they have transport.
2. If they do not have transport then the Event Producer will provide them suitable transport appropriate to their needs.
3. If their vehicle cannot be driven from site the same arrangements will be made as for patron's vehicles

c) Staff and suppliers who have remained on site

1. Staff who have remained on site will first be asked to assist patrons and artists leave the site as soon as possible
2. Any staff who need to leave and have vehicles which can be driven from the site will do so
3. If their vehicle cannot be driven from site the same arrangements will be made as for patron's vehicles

11.1.2 Clean up

As soon as possible after a flood staff and contractors will be engaged to clean up the site. A hazard assessment will be undertaken, safe work methods statements prepared and personal protective equipment supplied consistent with the known hazards which can be associated with floods:

- Slips, trips and falls
- Sharp debris
- Venomous animals
- Contaminated water and sediments

11.2 REVIEW AND EVALUATION

After the site has been cleaned up following a flood, or after any flood alert has been raised even if a flood has not eventuated, a debrief will be held and will involve as a minimum the Venue Manager, the Event Producer and the SES Local Controller but may include others as deemed necessary.

The event and flood response, including the use of this Plan and the Event Flood Plan, will be reviewed. Changes will be made to the Plan and the requirements for Event Plans should the review identify any improvements which can be made.

12 MANAGEMENT ACTIONS SUMMARY

Table 9: Summary of management actions

Event Stage	Trigger	What	How	Who	Resources
Before and During an Event	Always	New Stream Gauges	Parklands to install and link to existing monitoring system	Venue Manager and owners	Stream gauges and on-going maintenance
		Emergency Contact Details	Review and update, send to event producer and local SES	Venue Manager and Event Producers	Name and Contact details
		Planning and Layout	Site event areas planning and set up, resources checks	Venue Manager and Event Producers	Site diagrams
	At Induction	Training	For permanent parklands staff and temporary event staff	Venue Manager and Event Producers	Written procedures and information
	From one week before bump in to end of event	Forecast monitoring	Monitor websites listed in Section 3.7 and make observations daily	Venue Manager	internet access
	From one month before bump in to end of bump out	Communication with SES	Advise SES of event details	Venue Manager	Phone, copy of event flood management plan and contact details
	From one week before bump in to end of bump out	Communication with Event Producer	Consult with Event Producer on weather conditions and alert levels	Venue Manager	Contact details
		Communication with staff, artists and suppliers	Advise staff of alert levels and changes	Event Producer	Contact details and chain of command
	Ticket purchase	Communication with patrons	Online or hard copy information provided during purchase	Event Producer	Information resources and details

	Change in Flood Alert	Communication with patrons	Via emails, event website, social networks, media releases and SMS	Event Producer	Contact lists for patrons, phone, computer and internet access
Bump In	Blue Alert – Flood Watch	Forecast Monitoring	Increase monitoring to hourly	Venue Manager	Computer and internet access
		Event Modification	Consider necessary modifications to reduce risk	Event Producer	Site diagrams
		Communication with staff	Advise of flooding possibility and steps to be taken	Event Producer and event section managers	Contact lists and chain of command. Flood management actions to be undertaken.
		Communication with suppliers	Advise of flooding possibility and any changes and request contingency plans	Event Producer	Contact lists
		Communication with artists	Advise of flooding possibility and steps to be taken	Event Producer	Contact lists
During week before event	Blue Alert – Flood Watch	Communication with patrons	Flood information stickers to be distributed, designated driver advice issued	Event producer and event staff	Flood stickers and distribution means
Day before the event	Blue Alert – Flood Watch	Communication with patrons	Off site through emails, event website, social networks, media releases and SMS On site with flood information stickers and camp marshals	Event producer and event staff including camp marshals	Flood stickers and distribution means, appropriate signage and information
		Communications with	Advise of flooding possibility and	Event producer	Contact lists

		artists	steps to be taken		
During the Event	Blue Alert – Flood Watch	Forecast Monitoring	Increase monitoring to hourly	Venue manager	Computer and internet access
		Event modification	Consider necessary modifications to reduce risk	Event producer	Site diagrams
		Communication with staff	Advise of flooding possibility and steps to be taken	Event producer and event section managers	Contact lists and chain of command. Flood management actions to be undertaken.
		Communication with suppliers	Advise of flooding possibility and any changes	Event producer	Contact lists
		Communication with artists	Advise of flooding possibility and steps to be taken	Event producer	Contact lists
		Communication with patrons	Off site through emails, event website, social networks, media releases and SMS On site with flood information stickers and camp marshals	Event producer and event staff including camp marshals	Flood stickers and distribution means, appropriate signage and information
Bump Out	Blue Alert – Flood Watch	Forecast Monitoring	Increase monitoring to hourly	Venue manager	Computer and internet access
		Communication with staff	Advise of flooding possibility and steps to be taken	Event producer and event section managers	Contact lists and chain of command. Flood management actions to be undertaken.
		Communication with	Advise of flooding possibility and	Event producer	Contact lists

		suppliers	any changes and request contingency plans		
Bump In	Yellow Alert – Flood Warning	Forecast Monitoring	Increase monitoring to continually	Venue manager	Computer and internet access
		Event Modification	Consider necessary modifications to reduce risk	Event producer	Site diagrams
		Communication with staff	Advise of flooding possibility and steps to be taken	Event producer and event section managers	Contact lists and chain of command. Flood management actions to be undertaken.
		Communication with suppliers	Advise of flooding possibility and any changes and request contingency plans	Event producer	Contact lists
		Communication with artists	Advise of flooding possibility and steps to be taken	Event producer	Contact lists
During week before event	Yellow Alert – Flood Warning	Serving of alcohol	Cease serving alcohol	Event producer and bar staff	Contacts and bar closure signs
		Communication with patrons	Off site through emails, event website, social networks, media releases and SMS Arriving patrons through stickers and tent set up prevention On site with flood information stickers and camp marshals	Event producer and event staff including camp marshals	Flood stickers and distribution means, appropriate signage and information.
		Communication with artists	Advise of flooding possibility and	Event producer	Contact lists

			steps to be taken		
Day before the event	Yellow Alert – Flood Warning	Communicate with patrons	Off site through emails, event website, social networks, media releases and SMS Arriving patrons through stickers and tent set up prevention On site with flood information stickers and camp marshals	Event producer and event staff including camp marshals	Flood stickers and distribution means, appropriate signage and information.
During the event	Yellow Alert – Flood Warning	Forecast monitoring	Monitoring will be increased to continually	Venue Manager	Computer and internet access
		Communication with staff	Advise of flooding possibility and steps to be taken	Event producer and event section managers	Contact lists and chain of command. Flood management actions to be undertaken.
		Event modification	Consider if events need to cease or be modified to reduce risk. Consider escalating alert level.	Event producer and venue manager	Site diagrams, forecast information
		Serving of alcohol	Cease serving alcohol	Event producer and bar staff	Contacts and bar closure signs
		Relocation or modification of assets	Prepare on-site resources as per 7.4.5	Event producer, venue manager and all venue staff	Site diagrams, movable resources, contact lists
		Communication with suppliers	Advise of flooding possibility and request deliveries cease.	Event producer	Contact lists
		Communication with artists	Advise of flooding possibility and	Event produced	Contact lists and flood

			suggest equipment pack ups		management actions
		Communication with patrons	Off site through emails, event website, social networks, media releases and SMS – advise temporary closure Arriving patrons asked to leave and return when all clear is issued On site requests to return to vehicles, pack up camp sites	Event producer and event staff including camp marshals	Flood stickers and distribution means, appropriate signage and information. Website information and public address systems.
Bump Out	Yellow Alert – Flood Warning	Forecast Monitoring	Monitoring will be increased to continually	Venue Manager	Computer and internet access
		Communication with staff and suppliers	Advise of flooding possibility and steps to be taken, request contingency plans	Event producer and event section managers	Contact lists and chain of command. Flood management actions to be undertaken.
		Reschedule activities	Organise a timeline to accelerate removal of flood affected assets as a priority	Event producer	Contact lists and bump-out activities site diagrams
Bump In	Orange Alert - Evacuation	Forecast Monitoring	Monitoring will be increased to continually	Venue Manager	Computer and internet access
		Event Modification	Consider modification to layout, activities or program to reduce risk, dependant of forecast flood timing	Venue Manager	Site diagrams and forecasts
		Communication with staff	Advise of flooding possibility and steps to be taken	Event producer and event section managers	Contact lists and chain of command. Flood management actions to be

					undertaken.
		Communication with suppliers	Advise of flooding possibility and any changes and request contingency plans. Request deliveries cease.	Event producer	Contact lists
		Communication with artists	Advise of flooding possibility and steps to be taken	Event producer	Contact lists
During week before the event	Orange Alert - Evacuation	Communication with patrons	Off site through emails, event website, social networks, media releases and SMS – advise temporary closure Arriving patrons asked to leave and return when all clear is issued On site requests to return to vehicles, and follow instructions to vacate the site	Event producer and event staff including camp marshals	Flood stickers and distribution means, appropriate signage and information. Website information and public address systems.
		Communication with artists	Advise of flooding possibility and request they leave the site	Event producer	Contact lists
During the event	Orange Alert - Evacuation	Forecast monitoring	Monitoring will be increased to continually	Venue Manager	Computer and internet access
		Communication with staff	Advise of flooding possibility and steps to be taken to evacuate premises	Event producer and event section managers	Contact lists and chain of command. Flood management actions to be undertaken.
		Communication with patrons	Off site through emails, event website, social networks, media	Event producer and event staff including	Flood stickers and distribution means,

			releases and SMS – advise temporary closure Arriving patrons asked to leave and return when all clear is issued On site requests to return to vehicles, and follow instructions to vacate the site	camp marshals	appropriate signage and information. Website information and public address systems.
		Directing of vehicles	Vehicle staff to direct vehicles out of site on pre-determined access tracks	Camp marshals and traffic management staff	Evacuation route diagrams and tow trucks in case of bogging
		Communication with suppliers	Advise suppliers to cease deliveries until further notice	Event producer	Contact lists
		Communication with artists	Advise artists to leave the site following staff instructions	Event producer	Contact lists and evacuation routes
Bump Out	Orange Alert - Evacuation	Forecast Monitoring	Monitoring will be increased to continually	Venue Manager	Computer and internet access
		Communication with staff and suppliers	Advise all staff to leave the site and suppliers to cease deliveries until the all clear is given	Event producer	Contact lists
Bump In	Red Alert - Refuge	Forecast monitoring	Monitoring will be increased to continually	Venue Manager	Computer and internet access
		Communication with staff	Advise of flooding possibility and steps to be taken to shelter on site	Event producer and event section managers	Contact lists and chain of command. Flood management actions to be undertaken.

During week before event	Red Alert - Refuge	Communication with patrons	Off site through emails, event website, social networks, media releases and SMS – advise temporary closure Arriving patrons asked to leave and return when all clear is issued On site requests to leave vehicles and follow staff instructions to flood emergency evacuation area	Event producer and event staff including camp marshals	Appropriate signage and information. Website information and public address systems.
		Catering at evacuation area	All supplies to already be in place – staff to advise patrons of conditions	Event producer and event staff	Resources on site, management actions to be undertaken
During the event	Red Alert - Refuge	Forecast monitoring	Monitoring will be increased to continually	Venue Manager	Computer and internet access
		Communication with staff	Advise of flooding possibility and steps to be taken to shelter on site	Event producer and event section managers	Contact lists and chain of command. Flood management actions to be undertaken.
		Communication with patrons	Off site through emails, event website, social networks, media releases and SMS – advise temporary closure Arriving patrons asked to leave and return when all clear is issued On site requests to leave vehicles and follow staff instructions to flood emergency evacuation area	Event producer and event staff including camp marshals	Appropriate signage and information. Website information and public address systems.

		Catering at evacuation area	All supplies to already be in place – staff to advise patrons of conditions	Event producer and event staff	Resources on site, management actions to be undertaken
Bump Out	Red Alert - Refuge	Forecast monitoring	Monitoring will be increased to continually	Venue Manager	Computer and internet access
		Communication with staff and suppliers	Advise of flooding possibility and steps to be taken to shelter on site. Cease delivery instructions until further notice	Event producer	Contact lists and chain of command. Flood management actions to be undertaken.
Always	Black Alert – Event Cancellation	Communication with staff	Advise staff of cancellation	Event producer and event section managers	Contact lists and chain of command
		Communication with suppliers	Advise suppliers of cancellation of deliveries	Event producer	Contact lists
		Communicate with artists	Advise artists of cancellation	Event producer	Contact lists
		Communications with patrons	Off site through emails, event website, social networks, media releases and SMS – advise event cancellation Arriving patrons asked to leave Any on site patrons will be asked to leave immediately	Event producer and event staff including camp marshals	Appropriate signage and information. Website information and contacts.

Table 10: Emergency Contacts List – Venue Plan

Name	**Organisation**	**Role**	**Contact**
Mat Morris	North Byron Parklands	Venue Manager	9475 5046 0418 683 746 mat@northbyronparklands.com
	Emergency Services	Fire/ambulance/police	000
Noel McAviney	State Emergency Service	SES Local Controller	6625 7700 0418 663 836
	Bureau of Meteorology	NSW Duty Forecaster	9296 1555
	Byron Shire Council	Flood Engineer	6626 7000
	Byron Shire Council	Roads Engineer	6626 7000
	Byron District Hospital		6685 6200
	Tweed Hospital		07 5536 1133
	My Road Info Help Desk		council @lismore.nsw.gov.au
	Essential Energy Customer Service		13 20 80
	Venue telecommunications service provider		

Table 11: Emergency Contacts List – Event Plan

Name	**Organisation**	**Role**	**Contact**
Mat Morris	North Byron Parklands	Venue Manager	9475 5046 0418 683 746 mat@northbyronparklands.com
		Event Producer	
		Security Manager	
		Site Manager	
		Production Manager	
		Camping Manager	
		Catering Manager	
		Chief Medical Officer	
		Publicist	
		Waste Disposal Contractor	
		Water Supply Contractor	
	Emergency Services	Fire/ambulance/police	000
Noel McAviney	State Emergency Service	SES Local Controller	6625 7700 0418 663 836

	Bureau of Meteorology	NSW Duty Forecaster	9296 1555
	Byron Shire Council	Flood Engineer	6626 7000
	Byron Shire Council	Roads Engineer	6626 7000
	Byron District Hospital		6685 6200
	Tweed Hospital		07 5536 1133
	My Road Info Help Desk		council @lismore.nsw.gov.au
	Essential Energy Customer Service		13 20 80
	Venue telecommunications service provider		
	Event telecommunications service provider		

13 REFERENCES

Barnes, S. 2010 Medical Emergency Impact Assessment, Emergency First Aid Service Pty Ltd

Connelly, S. 2010, Environmental Assessment – North Byron Parklands: Tweed Valley Way and Jones Road, Yelgun. S J Connelly CPP Pty Ltd

Parsons Brinkerhoff Australia Pty Ltd, 2011, North Byron Parklands – Traffic Impact Assessment

State Emergency Service (SES) 2006, Byron Shire Local Flood Plan, NSW SES and Byron Shire Council

Worley Parsons, 2011, WaterRIDE V6.09 flood analysis software

APPENDIX A- SUGGESTED INFORMATION RESOURCE CONTENT

Flood Information Resource:

Suggested colour coding system from blue, through green to yellow to red and then white for all clear. The following instructions for each stage could be used:

1. Flood Watch – Blue - Flooding might be a possibility – Ensure you have a designated driver who is capable of driving in 12 hour's time and that you will be able to pack and safely leave.

2. Flood Warning – Yellow – Flooding is expected to occur – Campers immediately pack all gear and stay with your vehicle. Day visitors to return to their vehicles. Public transport patrons to make their way to pick-up locations. Await further instructions.

3. Evacuation – Orange – All patrons to leave the site by vehicle following directions of event staff. Remain on the marked roads. When off-site do not drive through floodwaters.

4. Take Refuge – Red – Flooding is a threat to patrons – If flooding occurs suddenly or prevents complete evacuation of the site you will need to take refuge on the flood free land as directed by event staff and message boards. Leave your vehicle and follow the directions of staff taking only essential clothing, medications and food with you. Walk on designated roads and paths. Do not attempt to move your vehicle. Do not enter floodwaters.

5. All Clear – White – Flooding has ceased – When flooding, or the threat of flooding, has passed an all clear will be given. You may return to your vehicle. The event may continue or may be stopped depending on the circumstances.