NORTHROP


# Flood Emergency Response Plan

*for*

# 24 David Road, Wetherill Park

*for* Borg Property

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# Report Details

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# 1. Introduction

Northrop Consulting Engineers have been engaged by Borg Property Pty Ltd to prepare a Flood Emergency Response Plan for the Resource Recovery & Recycling Centre at 24 Davis Road, Wetherill Park (the subject site). The subject site is located within the Smithfield-Wetherill Park Industrial estate which is the largest industrial estate in the southern hemisphere employing over 20,000 people over 1,000 manufacturing, wholesale, transport and service firms.

This Flood Emergency Response Plan (FERP) has been developed to:

- Promote a satisfactory awareness of the expected flood behaviour and flood risks associated with the subject site.
- Identify measures to monitor weather forecasts and to become flood prepared.
- Provide a recommended course of action during and after flood events.

This assessment has given consideration to the following documents:

- The Surface Water Assessment Modification of a Resource Recovery and Recycling Facility at 24 Davis Road, Wetherill Park, completed by Eclipse Consulting September 2020.
- The Surface Water Assessment for 24 Davis Road, Wetherill Park, Proposed Resource Recovery & Recycling Centre completed by Northrop Consulting Engineers in 2017 and referenced as the *"Surface Water Assessment (Northrop, 2017)"* in this report.
- A Flood Information Sheet for 24 Davis Road, Wetherill Park provided by Fairfield City Council in 2016 and referenced as the *"Flood Information Sheet (Fairfield City, 2016)"* in this report.
- The Wetherill Park Overland Flood Study completed by Fairfield City Council in conjunction with Cardno in 2015 and referenced as the *"Wetherill Park Flood Study (Fairfield Council, 2015)"* in this report.
- Prospect Creek Floodplain Management Plan Review Parts 1 and 2 completed by Bewsher Consulting in 2010 referenced as the *"Prospect Creek FMP (Bewsher, 2010)"* in this report.
- The Fairfield City Flood Emergency Sub Plan developed by the State Emergency Service (SES) in consultation with Fairfield City Council, completed in 2016 and referenced as the *"SES EMPLAN (SES, 2016)"* in this report.

Contained herein is a description of the subject site, the study methodology, a summary of the likely flood behaviour, recommendations for flood preparation and response actions prior to a flood event.

# 2. Methodology and Available Data

This Flood Emergency Response Plan has been prepared using the following methodology:

- Desktop review of the available flood information for the subject site including a summary of the likely flood behaviour across and within the general vicinity of the subject site.
- Investigation and presentation of the local flood evacuation procedures and summary of how and where flood warnings can be assessed.
- Nomination of the persons responsible for site specific roles such as the preparation and maintenance of the onsite flood emergency kit and identification of the responsible guides for safe evacuation and/or refuge for the subject site.
- Identification of potential on-site refuge points and off-site evacuation assembly points.

# 3. Flood Behaviour

## 3.1. Flood Source

The site is located within the northern-western portion of the highly urbanised Smithfield-Wetherill Park Industrial Estate and is also located adjacent to Prospect Creek. Flooding of the subject site has the potential to occur from two sources including both the local Wetherill Park catchment and regional Prospect Creek catchment.

The subject site is located in the upper reaches of the Prospect Creek catchment which commences just downstream of the Prospect Reservoir and travels in a south-easterly direction and ends at its confluence with the Georges River approximately 20km downstream.

The local catchment extends to the east of the subject site and includes the Wetherill Park industrial estate and a portion of Rural Residential and Open Space land-use which is located adjacent to the northern and western boundaries of the industrial estate.

## 3.2. Peak Flood Levels and Velocities

Site specific peak flood levels are presented in the Flood Information Sheet (Fairfield City, 2016) and velocities are presented in the Wetherill Park Flood Study (Fairfield Council, 2015) are summarised in Table 1 below.

**Table 1 – Subject Site Flood Levels**

| Event | Level (m AHD) | Depth (m)* | Velocity (m/s)* |
|---|---|---|---|
| 5% AEP | 36.3 – 36.8 | 0.0 – 0.3 | N/A |
| 1% AEP | 36.4 – 36.9 | 0.0 – 0.5 | <1.0 |
| PMF | 37.0 – 38.0 | 0.0 – 1.0 | >1.5 |

* Flood Depths and Velocities have been obtained from the Wetherill Park Flood Study (Fairfield Council, 2015) and include depths in Davis Road.

These are rare events which are not expected to occur every time it rains. The 5% AEP refers to the Annual Exceedance Probability and is commonly referred to as the “20-year flood” while the 1% AEP is commonly referred to as the “100-year flood”. The PMF is the Probable Maximum Flood which has a nominal annual probability of occurring in the order of 1 in 10 million.

The following Figure 1 presents the predicted 5% AEP, 1% AEP and PMF flood extents across the subject site and Davis Road.

Figure 1 suggests that only a small portion of the subject site is expected to become inundated during all events up to and including the PMF design storm event. It is anticipated that Davis Road, adjacent to the subject site, will not be trafficable for events greater than or equal to the 1% AEP.


**Figure 1 – Flood extents relative to the site boundary**

### 3.3. Flood Behaviour and Hazard Category

Flooding from the local catchment has been considered in the Wetherill Park Flood Study (Fairfield Council, 2015). The study suggests a critical duration in Davis Road and across the subject site of two hours for the 1% and 5% AEP design storm events and 15 minutes is shown for the PMF. Due to the relatively steep topography across the subject site and relatively short duration events, prolonged inundation of the subject site is not anticipated with flood waters expected to subside within a couple hours. Flows are expected to approach from the west along Davis Road and continue in an easterly direction along Davis Road towards an un-named watercourse located to the east of Wenban Place.

Flood hazard has been assessed as part of the Wetherill Park Flood Study (Fairfield Council, 2015) based on the hydraulic hazard categories outlined within the NSW Floodplain Development Manual (OEH, 2005) and reproduced in the below Figure 2.

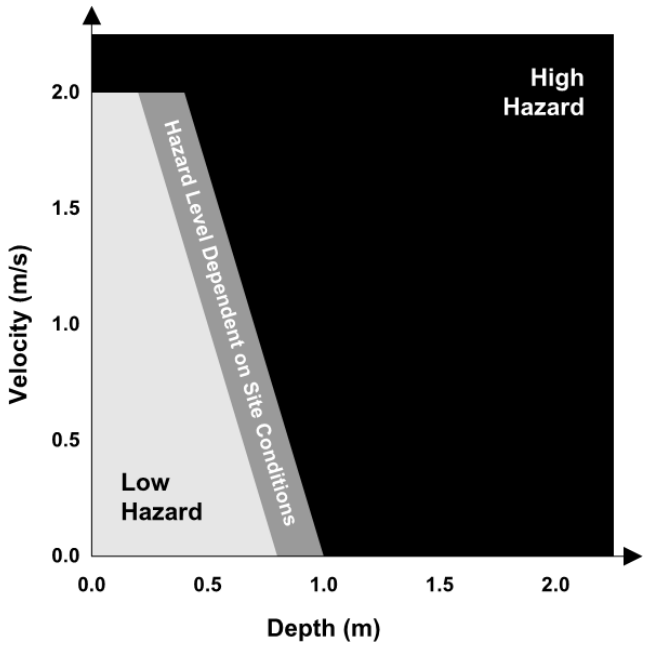



**Figure 2 – Flood Hazard Classifications (NSW Floodplain Development Manual (OEH, 2005))**

During the 1% AEP design storm event the Wetherill Park Flood Study (Fairfield Council, 2015) suggests the flood depths in the Davis Road carriageway generally less than 500mm with velocities generally less than 1.0m/s. This corresponds to “Low Hazard” flow behaviour in accordance with Figure 2.

Similarly, during the PMF design storm event, depths presented in the Wetherill Park Flood Study (Fairfield Council, 2015) are shown to be less than 1.0m with velocities generally less than 1.5m/s. When combined, these hydraulic conditions have the potential to produce “High Hazard” flow behaviour.

The hydraulic behaviour presented in Figure 2 has been used to develop the Provisional Flood Precincts for the Wetherill Park Flood Study (Fairfield Council, 2015), reproduced in Figure 3 below. The results show a Medium Flood Risk Precinct exists in Davis Road which also suggests “Low Hazard” conditions are observed during the PMF design storm event.

**Do not Drive or Walk Through Floodwater.**

**Remember, If It’s Flooded, Forget It!**

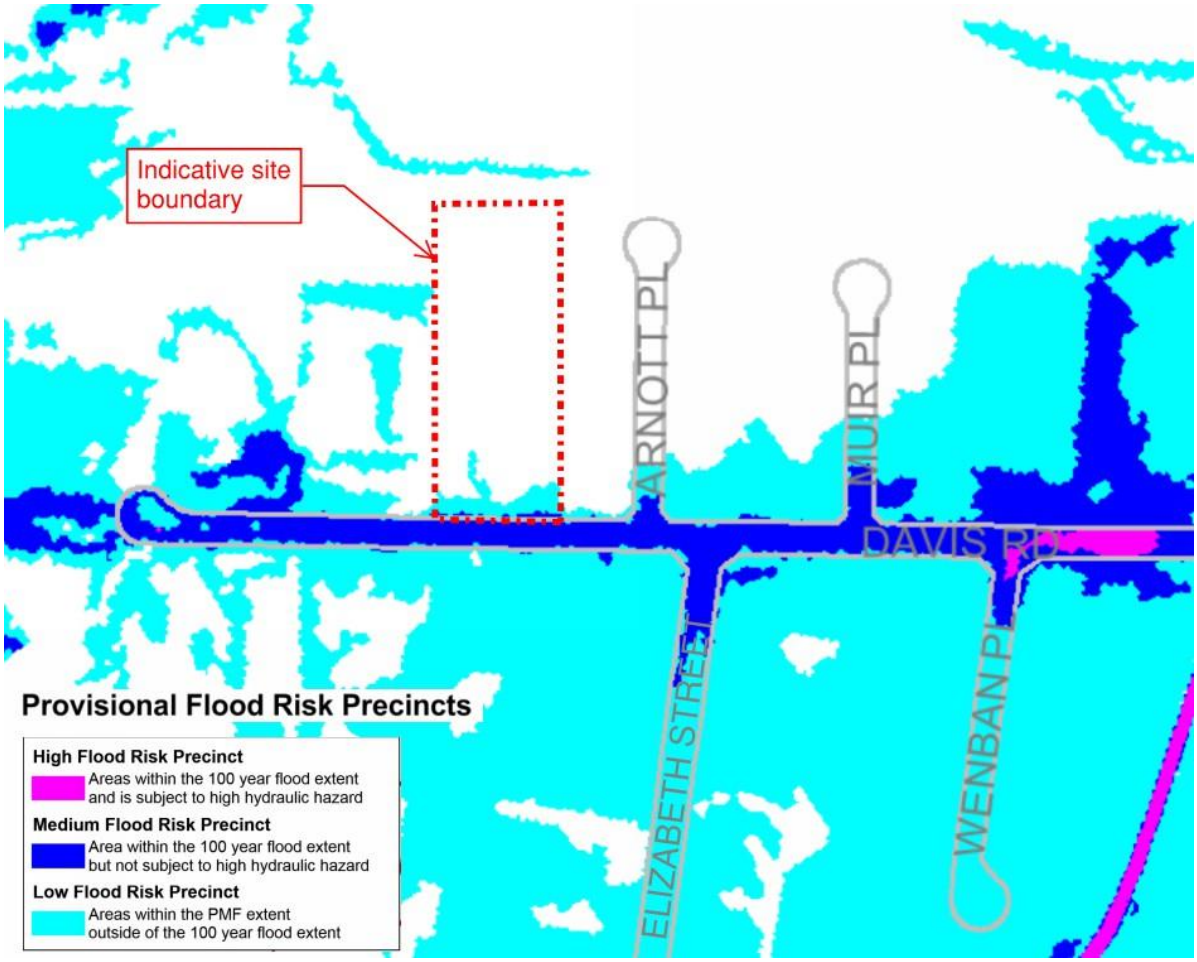



**Figure 3 – Provisional Flood Risk Precincts (Wetherill Park Flood Study (Fairfield Council, 2015))**

Review of the previously discussed hydraulic behaviour with respect to the latest Australian Rainfall and Runoff 2019 (ARR 2019) guidelines suggests a maximum H2 and H5 hazard classifications may be observed in Davis Road (directly adjacent to the subject site) during the 1% AEP and PMF design storm events respectively. This suggests that Davis Road may be trafficable for large vehicles and pedestrians during the 1% AEP but is unsafe for all vehicles and pedestrians during the PMF.

Although Davis Road may be trafficable along the subject site frontage during a 1% AEP does not mean it is safe to evacuate the site during a 1% AEP design storm event. Flood hazard conditions can vary significantly throughout the catchment. Figure 3 suggests there is a spike in the flood hazard conditions at the intersection of Davis Road and Wenban Place and as suggests Davis Road is not trafficable at this location during the 1% AEP. Similarly, the Wetherill Park Flood Study (Fairfield Council, 2015) suggests depths in excess of 500mm are likely at the intersection of Elizabeth Street and Davis Road during the 1% AEP design storm event.

Note that as flood waters rise and overtop roads, there is a potential for shallow depths but high velocity flow conditions, particularly across roads and creek crossings. Never drive or walk through flood water, remember if it is flooded, forget it!

### 3.4. Prospect Creek and Dam Break

Given the size of the upstream regional catchment (in the order of 10km$^2$), and the significant storage capacity of the Prospect Reservoir, if flooding of the subject site occurs from Prospect Creek it is expected to occur over a long period of time. Unfortunately, the Prospect Creek FMP (Bewsher, 2010) does not include the portion of Prospect Creek to the north of the subject site however, this does not preclude the possibility of flooding from this catchment.

Similarly, Prospect Reservoir is located to the north of the subject site. Dam break conditions were not available when preparing this plan however, in the unlikely event of a failure of the Prospect Reservoir, flooding may be spontaneous with little warning.

Flooding of the subject site from these sources is also not noted on the Flood Information Sheet provided by Council however, in the unlikely event of flooding from these sources, it is important to always follow the direction from Emergency Services.

# 4. Flood and Evacuation Warnings

A network of rainfall gauge stations is maintained throughout the greater Sydney metropolitan region. These provide information to the Bureau of Meteorology as one source of information informing their flood warning system.

The Bureau should issue one of five types of warnings through local radio, television and through their website http://www.bom.gov.au. In addition, the SES may issue a flood bulletin, evacuation warning or evacuation order.

Due to the sensitive nature of this location, it is recommended to register for automatic text and email notifications from the Early Warning Network which filters and passes on BoM warnings.

## 4.1. Warning Types

### 4.1.1. Severe Weather Warning

Severe weather warnings are issued by the Bureau for potentially dangerous weather conditions. A description of the threat will be included in the warning along with the time for next issue. It is noted that a severe weather warning does not imply that flooding will eventuate. Warnings are generally updated every six hours, or as the event dictates.

This type of warning should be accompanied with predicted extreme rainfall depth as discussed in Section 10, as well as observed values from around the state.

### 4.1.2. Severe Thunderstorm Warning

A severe thunderstorm warning will be issued if there is strong evidence that a severe thunderstorm will develop, or if a severe thunderstorm is reported. Flash flooding may occur during severe thunderstorms. Warnings are generally updated every three hours or shorter as required.

### 4.1.3. Flood Alert/ Watch/ Advice

A flood alert/watch/advice will be issued if flood producing rain is expected. This provides an early warning that flooding may occur.

### 4.1.4. Generalised Flood Warning

A generalised flood warning is to be issued when flooding is expected to occur in the given area. Three hours warning time is expected from issue of warning to peak flood level as per the “Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 3.1” (Bureau of Meteorology, 2013).

This is the most likely warning type for the subject site should evacuation need to occur.

### 4.1.5. Minor/ Moderate/ Severe Flood Warning

A more detailed flood warning may be issued based on any additional information available. Three hours warning time is expected from issue of warning to peak flood level.

All warnings will be issued through the website, radio and television. Radio frequencies include ABC Sydney (702AM / 92.9FM, 206.352MHz Digital), Triple J (105.7FM), 2DayFM (104.1FM), Triple M (104.9FM), Nova (96.9FM), MIX (106.5FM), 2GB (873AM) and 2UE (954AM).

All public and commercial television stations should broadcast warnings.

### 4.2. SES Flood Bulletins

The SES may issue a flood bulletin providing information of the likely flood consequences and recommended actions.

### 4.3. Evacuation Warning

The SES may issue an evacuation warning which allows time to prepare for evacuation.

### 4.4. Evacuation Order

The SES will issue an Evacuation Order if evacuation is required. If this occurs evacuation must be undertaken. Broadcast will be via radio/ TV, door knock, automated telephone message or SMS.

### 4.5. On-site Emergency Tone

It is recommended that the handheld loudspeaker be configured to sound an emergency tone meaning all visitors, staff and customers shall assemble in the designated assembly point under the direction of staff and flood wardens.

This should be tested every drill, or once a year. Should it be inoperable in the event of an emergency, an air horn is located within the Flood Emergency Kit.

### 4.6. Early Warning Network Automated Text and Email Service

The facility is to register for automatic alerts with the Early Warning Network (www.ewn.com.au) which will filter the above BoM warnings and send texts and emails to the Chief Flood Warden and all Flood Wardens to notify them of the situation.

# 5. Flood Response Personnel

## 5.1. Responsibilities

Summarised below in Table 2 are the subject site personnel, their location and responsibilities in managing flood response.

**Table 2 - Flood Response Personnel**

| | Location | Responsibilities |
|---|---|---|
| **Chief Flood Warden** | Onsite | • Coordinate flood evacuation drills with the Deputy Flood Warden, First Aid Officers and Flood Wardens.<br>• Monitor weather daily for upcoming extreme rainfall events.<br>• Receive notifications from Early Warning Network (EWN).<br>• Decide when closure of the facility and evacuation is necessary.<br>• Communicate closure and evacuation to Deputy Chief Flood Warden, First Aid Officers and Flood Wardens.<br>• Liaison with SES or Emergency Services personnel if they attend site.<br>• Remain calm and direct staff and visitors through evacuation procedures. |
| **Deputy Chief Flood Warden** | Onsite | • Undertake Chief Flood Warden duties when Chief Warden unavailable.<br>• Receive text notifications from EWN. |
| **First Aid Officer** | Onsite | • Prepare and maintain Flood Emergency Kit.<br>• Ensure all visitors have the necessary medications if evacuating site.<br>• Coordinate assistance for staff and visitors with mobility difficulties. |
| **Flood Wardens** | Onsite | • Cancel any upcoming bookings and co-ordinate alternative accommodation for visitors in the hotel.<br>• Receive text notifications from EWN.<br>• Maintain calm and direct staff and visitors through evacuation or refuge process. |
| **Staff, Contractors and Visitors** | Onsite | • Maintain calm, proceed to the Emergency Assembly Point and follow directions from the Flood Wardens. |

## 5.2. Recommended Role Allocation

During construction, it is anticipated that the site supervisor will be on-site the most and as such has been nominated the role of Chief Flood Warden. The Deputy Chief Flood Warden should be allocated to the second in command while the roles of First Aid Officer and Flood Warden should be allocated to staff that are on site on a frequent basis.

During operation, the facility manager is expected to be on-site the most and as such has been nominated the role of Chief Flood Warden. The Deputy Chief Flood Warden should again be assigned to the second in command, while the First Aid Officer should be allocated to the site WHS officer. The role of Flood Warden should be allocated to staff that are located in each section of the facility and are on site on a regular basis.

# 6. Assembly Point and Evacuation Routes

## 6.1. Emergency Assembly Point

During construction of the facility, it is recommended a **temporary Site Office** be placed outside the flood zone. This facility is nominated as **Emergency Assembly Point during construction**.

The nominated **Emergency Assembly Point during operation** of the facility is the **Shed/ Warehouse** shown below in Figure 4 below.

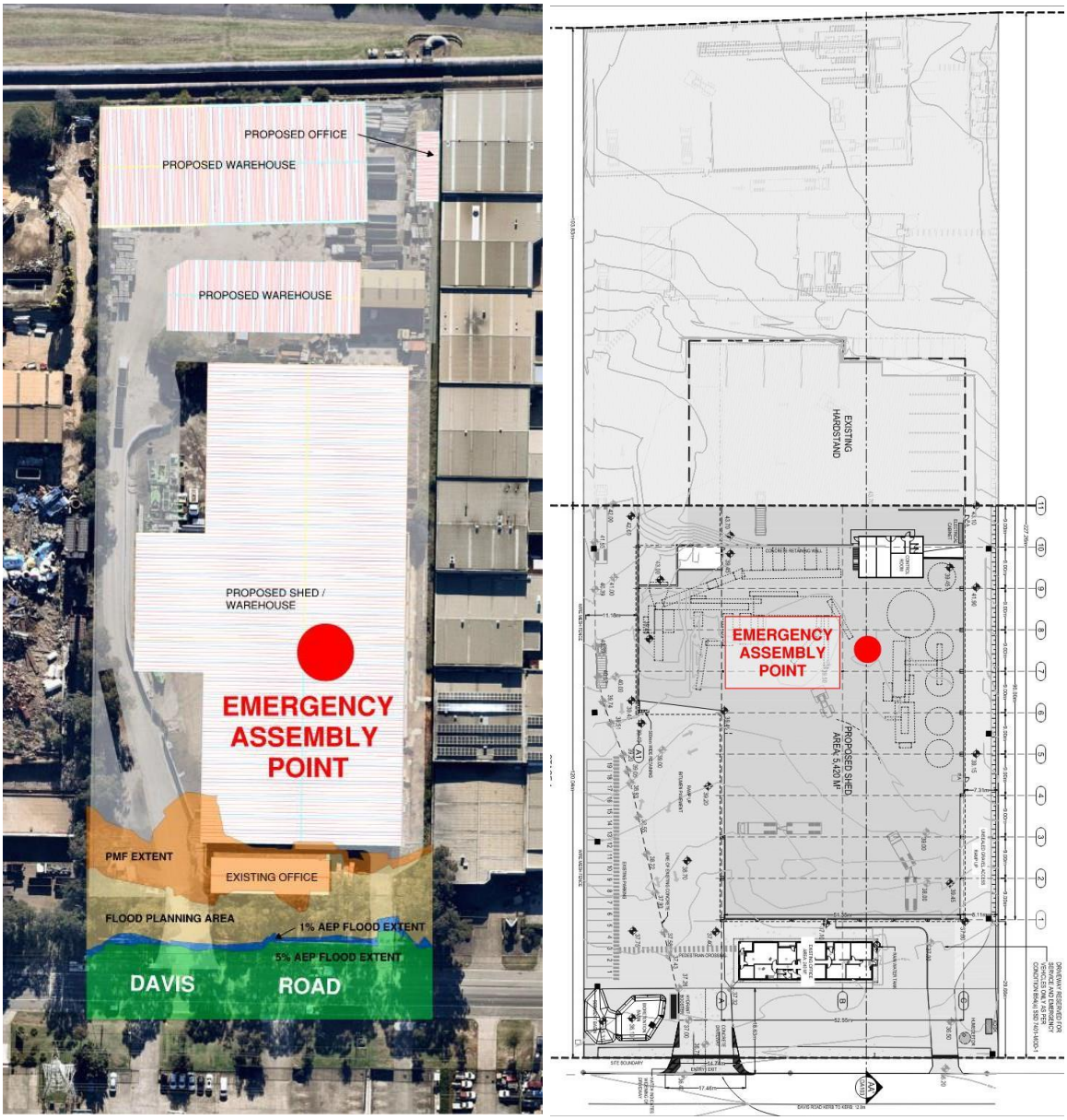



**Figure 4 - Flood Emergency Assembly Point**

During operation, the shed / warehouse facilities have been chosen as it is well outside the flood zone and is under cover providing staff and visitors seeking refuge shelter and access to supplies during the event.

## 6.2. Trigger for Action

The following Table 3 presents the estimated rainfall depths for the 5% AEP, 1% AEP and PMF return intervals as well as the predicted return interval when it is expected that evacuation routes will be cut by flooding.

**Table 3 – Evacuation Routes Cut by Flooding at specific return intervals**

| Return Interval | Predicted Rainfall Depth* | Evacuation Route Cut by Flooding** |
|---|---|---|
| 5% AEP<br>(1 in 20-year event) | 31.3mm over 20 mins<br>68.2mm over 2 hours<br>104.4mm over 6 hours | • Depths in excess of 500mm in Davis Road intersection with Wenban Place.<br>• Access and egress from the subject site is cut along Davis Road to the east of Muir Place.<br>• Depths in excess of 500mm on Victoria Street to the west of Canley Vale Road and east of Emerson's Street.<br>• Access and egress from subject site cut along Victoria Road.<br>• Depths in excess of 1 metre in Widemere Road/ Prospect Highway at Prospect Creek Crossing.<br>• Access and egress to the north from subject site cut along Widemere Road/ Prospect Highway at Prospect Creek Crossing. |
| 1% AEP<br>(1 in 100-year event) | 40.3mm over 20 mins<br>88.2mm over 2 hours<br>135.6mm over 6 hours | • Potential for depths in excess of 500mm in The Horsley Drive to the east of Emerson Street.<br>• Depths in excess of 500mm at the intersection of Davis Street and Elizabeth Street.<br>• Access and egress to Elizabeth Street unavailable. Davis Street to the east of Elizabeth Street including the subject site becomes isolated. |
| PMF | ~170mm over 15 mins<br>~390mm over 1 hour<br>~740mm over 3 hours | • Depths in excess of 500mm along Davis Road adjacent to the subject site.<br>• Access and egress from the subject site to Davis Street is unavailable. |

* Obtained from the Bureau of Meteorology for a location over Wetherill Park using ARR 1987 IFD Charts

** Based on the figures presented in the Wetherill Park Flood Study (Fairfield Council, 2015)

The analysis has assumed access will not be possible at a "High Hazard Precinct" classification, a depth in excess of 500mm and/or a velocity greater than 2.0m/s. The additional depth and velocity conditions are based on a maximum hazard classification of H2 (unsafe for small vehicles) from the latest ARR 2016 guidelines, in particular Book 6 - Chapter 7 – Section 7.2.7 – General Flood Hazard Curves.

The above Table 3 suggests evacuation from the subject site onto Davis Street may be possible but egress along Davis Road at the intersection with Elizabeth Street will not be possible during a predicted 1% AEP design storm event. As such the subject site and Davis Road becomes isolated during the 1% AEP design storm event.

In the event were the Bureau of Meteorology issues a **Severe Thunderstorm Warning** or **Generalised Flood Warning** with depths in the order of the **1% AEP predicted rainfall depths presented in Table 3** it is recommended **the facility be closed and evacuated prior to the commencement of rainfall.**

**If there are any staff or visitors still on-site at the commencement of rainfall, it is recommended they seek refuge in the designated Emergency Assembly Point and wait until flood waters subside.**

Note that this trigger is expected to be used as a guide only. In the event where emergency services request the site be evacuated at a lower predicted rainfall depth direction from emergency services takes precedence over the findings of this report.

### 6.3. Evacuation Route

Evacuation from the subject site is not recommended during a flood event. Refuge onsite is the safest option following commencement of a flood event. In the event where evacuation is required, the preferred evacuation route from the subject site is to the east along Davis Street turning south along Elizabeth Street, west along The Horsley Drive, south along Mimosa Road and finally east or west along Polding Street. This route is presented in the below **Figure 5**.

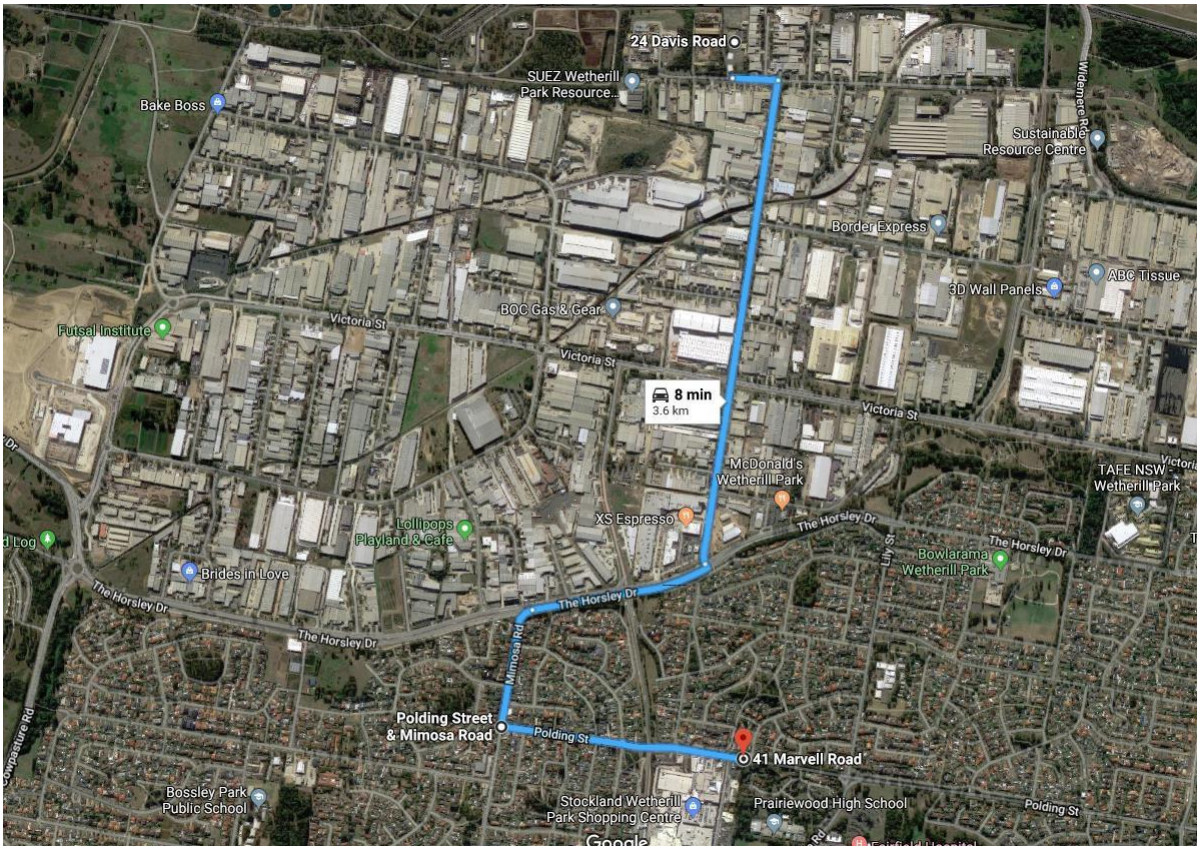



**Figure 5 – Flood Evacuation Route**

**It is strongly recommended that if staff and visitors remain on site during a flood event, refuge be sort on site until flood water subsides. Evacuation should only be attempted in an emergency for events up to the 1% AEP design storm event. Evacuation should not be attempted during the PMF unless advised otherwise by emergency personnel.**

# 7. Floor Levels and On-site Refuge

## 7.1. Floor Levels

The **temporary office facility** is to be placed outside the flood extent with a floor level above the PMF to ensure safe refuge is available during construction Floor levels for the temporary office should be no less than **38.0m AHD**.

During operation floor levels for the **Proposed Warehouse/ Shed** is expected to be **39.45m AHD** which is approximately 1.45 metres above the **PMF level of 38.0m AHD.**

## 7.2. On-site Refuge

In the event where rainfall has commenced with staff, contractors and visitors still on-site during construction it is recommended they seek refuge within the **temporary office facility**. Anyone seeking refuge should remain in the office facility and wait until flood water subsides.

In the event where rainfall has commenced with staff or visitors still on-site during operation of the facility, on-site refuge is available on site in the **Proposed Warehouse / Shed** where they should remain and wait until flood water subsides.

# 8. Emergency Contact

For emergency assistance during flood events, please call the **SES** on **132 500.**

If you are in a life-threatening situation please call **Police, Fire or Ambulance** on **000**.

# 9. Flood Response Preparation

It is the responsibility of the Chief Flood Warden that the facility is prepared for a flood event. This will be achieved through; induction training, drills, nomination of flood wardens, education of flood risks and behaviour, and the preparation and maintenance of a *Floodsafe Emergency Kit*. A *Floodsafe Emergency Kit* should be prepared for both construction and operation of the facility.

The information presented above is a summary of the flood behaviour and is considered key to understanding the risks associated with flooding. This should be displayed in conjunction with other emergency information (such as fire, etc.) throughout the centre.

## 9.1. Evacuation Drills

Evacuation drills are designed to increase flood awareness within the facility. These drills are to be undertaken at least once per year to familiarise staff of the procedures when responding to a flood event.

## 9.2. Training

During construction, all personnel will undertake a compulsory site induction prior to commencing work onsite. It is recommended that during the site induction, information with respect to the flooding conditions around the subject site be included in the induction. This should include a summary of the information provided in this plan.

If site inductions are not required during the operation of the facility, additional training courses are recommended to educate staff of the flooding conditions of the site. This training should be performed on the staff members first day and may include a site walkover that identifies the flooding conditions as well as the nominated flood refuge locations.

In addition to site inductions and training courses, tool-box talks can be performed and should include reminders as to what to do in the event of a flood as well as identify the nominated flood refuge points.

Records should be kept which should detail who has had the training, when they were trained, the name of the trainer as well as reference to the material used in the training course.

## 9.3. Flood Emergency Kit

Potential items for a flood emergency kit are outlined at; https://www.ses.nsw.gov.au/floodsafe/prepare-your-home/emergency-kit/, and reproduced below:

- A copy of each facility's emergency management plan.
- Chemical register.
- Air horn and hand-held loudspeaker.
- Portable radios with spare batteries.
- A torch with spare batteries.
- A first aid kit.
- Candles and waterproof matches.
- Waterproof bag for valuables.
- Drinking water and non-perishable food items.
- A copy of emergency numbers.

When leaving or evacuating add the following items:

- **Sign in book** for visitors and contractors.
- **Drinking water, medicines** and **non-perishable food items.**
- **Special requirements** for infants, the disabled and the elderly **(i.e., walking aids, medications, etc.).**

The Flood Emergency Kit should be kept in the **Control Room** in a roll trolley suitable for easy deployment in the event of an evacuation. The contents of the kit and management during a flood event will be the responsibility of the **First Aid Officers**.

**TRIGGER FOR REVIEW AND EDUCATION;** Six monthly checking of the emergency kit to ensure all items are in suitable working order. Yearly evacuation drill and reminder of the flood risks.

**BY WHO;** Chief Flood Warden and First Aid Officer.

### 9.4. Monitoring of Weather Situation

It is the responsibility of the Chief Flood Warden to monitor the weather situation of be aware if a warning has been issued. This will be achieved through automatic text messages and emails from the Early Warning Network and checking of local radio station and the Bureau website.

**TRIGGER FOR MONITORING;** Continuous – daily.

**BY WHO;** Chief Flood Warden.

# 10. Flood Response Actions

## 10.1. Evacuation

In order to minimise the risk to life of staff, contractors and visitors, it is recommended the facility be closed in the event of a **Generalised Flood Warning** or **Severe Weather Warning** with nominated rainfall in the order of the **1% AEP predicted rainfall depths presented in Table 3**. In the event where staff and visitors remain on site.

The Chief Flood Warden is responsible reviewing the weather forecasts daily and notifying the other facilities and staff of the decision.

When a warning is received, and if time permits, consideration should also be given to:

- Securing and/or covering loose materials and equipment.
- Blocking floor wastes and toilets.
- Securing and/or raising objects that are likely to float, be blown away and cause damage.
- Turning off mains power, water and gas.
- Relocating chemicals above the predicted water level.

The evacuation procedure shall be as follows:

- Chief Flood Warden to Sound Emergency Tone using the Hand-Held Loudspeaker.
- Chief Flood Warden to communicate evacuation to all facilities.
- Chief Flood Warden to the Emergency Assembly Point.
- Staff, Visitors and Contractors to the Emergency Assembly Point.
- Flood wardens clear all buildings.
- Roll call to ensure all staff and visitors are accounted for.
- Leave signage undercover and notify Police / SES that evacuation has occurred, and to where.
- Control evacuation to either evacuation centre nominated above.
- Wait it out at the designated refuge point.

**TRIGGERS FOR EVACUATION:**

- Generalised Flood Warning.
- Severe Weather Warning with forecast in the order of:
  - 40.3mm over a period of 20 mins.
  - 88mm or more of rain over 2-hour period.
  - 135.6mm over a period of 6 hours.
- Request from Emergency Services to Evacuate.

**RESPONSIBLE FOR THE DECISION;** Chief Flood Warden

## 10.2. Refuge On-Site

In the event where staff and visitors become remain onsite after rainfall has commenced, it is recommended they seek refuge in the nominated Emergency Assembly Point. In the event where refuge is sort on site:

- **Make Announcement Over the Hand-Held Loudspeaker.**
- **Direct** everyone to nominated **Emergency Assembly Point.**
- **Roll call** to ensure everyone is accounted for.
- **Explain** that refuge is being sought on-site and the measures in place to make this safe to maintain calm.
- **Wait it out** until flood waters subside.

**TRIGGERS FOR REFUGE ONSITE**

- **Rainfall has commenced.**

**RESPONSIBLE FOR THE DECISION;** Chief Flood Warden

## 10.3. Emergency Services Attending Site

It is noted that self-motivated evacuation and closure of the facility, well in advance of the beginning of rainfall, reduces strain on emergency services in a flood event. There is however, a possibility that emergency services such as Police, Fire, Ambulance or SES may attend site and assume control from the Chief Flood Warden. Once this has occurred, they are in control of the site and any response operations.

**TRIGGERS FOR EMERGENCY SERVICES TAKE CONTROL**

- Police, Fire, Ambulance or SES attending site.

**RESPONSIBLE FOR THE DECISION;** Chief Flood Warden

## 10.4. After a Flood

Once a Final Flood Warning or SES “All Clear” has been received:

- A thorough check of services such as electricity, sewer, water and gas should be undertaken by qualified persons.
- Advice should be sought from a suitably qualified engineer as to the structural integrity of buildings prior to their use.
- Personal protective equipment should be worn during the clean-up and disinfectant used.

**TRIGGER FOR RETURN;** All clear given by SES or emergency services and building inspected by representatives.

**BY WHO;** SES, Emergency services, Flood wardens.

# 11. Revision of the Flood Emergency Response Plan

This plan should be revised if any of the Studies or Plans outlined in **Section 1** of this report is reviewed to capture changes in the catchment since the last studies and the new guidelines developed as part of Australian Rainfall and Runoff 2016. This plan should also be revised if a Dam Break report for the Prospect Reservoir is made available.

Notwithstanding the above, this plan shall be **revised every three years** or when there is a major operational change or major flood event.

Revisions should be undertaken by a suitably qualified flood emergency response consultant.

# 12. Conclusion

The subject site is affected by flooding from the local upstream catchment. A review of the proposed development has been undertaken in conjunction with the expected flood behaviour and it was concluded that:

- Nominated flood wardens will provide adequate direction in flood emergencies.
- Closure of all facilities is preferable prior to major events to eliminate exposure to flood hazards.
- If operations have commenced for the day, closure and evacuation from the facility should be carried out prior to rainfall commencing.
- If rainfall has begun, refuge may be sort on-site as a means of last resort. The shed/ warehouse facility has a building floor level well above the predicted PMF.
- Through adoption of this plan, the proposed development adequately minimises the flood risks. The recommendations contained herein assist in managing the risk to life of the staff, children and visitors to the subject site.

This Flood Emergency Response Plan recommends the following:

- A temporary site office is recommended to be used during construction and is anticipated to be used as an Emergency Assembly Point in the event of a flood. It is recommended this office be placed at a location outside the flood extent to enable safe refuge in the occasion of a major/extreme flood event.

This study has been developed based on the information provided in the Wetherill Park Flood Study (Fairfield Council, 2015). There is the potential for flooding from Prospect Creek and the Prospect Reservoir however, due to limited information available while preparing this plan these flood sources have not been included in this study.

This report is based on the best information available at the time of preparation. It is possible that flood conditions may vary from those outlined in this report. As such, during a flood event, it is important to always follow instruction from the SES and emergency services as they will have the best information on the ground at the time of the event. If emergency services nominate an alternative evacuation procedure during an event SES and Emergency Services direction should take precedence.

**Do Not Drive or Walk through Floodwater.**

**Remember, If It's Flooded, Forget It!**

# 13. References


| | | |
|---|---|---|
| SES | (2018) | *Flood Disaster Website* accessed from https://www.ses.nsw.gov.au/disaster-tabs-header/flood/ 31 January 2019 |
| SES | (2018) | *Emergency Business Continuity Plan* accessed from http://www.sesemergencyplan.com.au/business/index.php 25 January 2019 |
| Bureau of Meteorology | (2013) | Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 3.1 accessed from http://www.bom.gov.au/nsw/NSW_SLS_Current.pdf 31 January 2019 |
| SES / Fairfax City Council | (2013) | Upper Hunter Shire Local Flood Plan accessed from https://www.ses.nsw.gov.au/media/1602/plan-fairfield-city-lfp-april-2016-endorsed.pdf 22 January 2019 |
| Northrop | (2017) | Surface Water Assessment for 24 Davis Road, Wetherill Park, Proposed Resource Recovery & Recycling Centre completed by Northrop Consulting Engineers in 2017 |
| Fairfield City Council / Cardno | (2015) | Wetherill Park Overland Flood Study accessed from http://www.fairfieldcity.nsw.gov.au/info/20002/planning_and_building/312/flood_maps_and_studies 25 January 2019 |
| Bewsher | (2010) | Prospect Creek Floodplain Management Plan Review Parts 1 and 2 accessed from http://www.fairfieldcity.nsw.gov.au/info/20002/planning_and_building/312/flood_maps_and_studies 25 January 2019 |
| Fairfield City Council | (2016) | Flood Information Sheet for 24 Davis Road, Wetherill Park. |

# Appendix A – Flood Response Summary

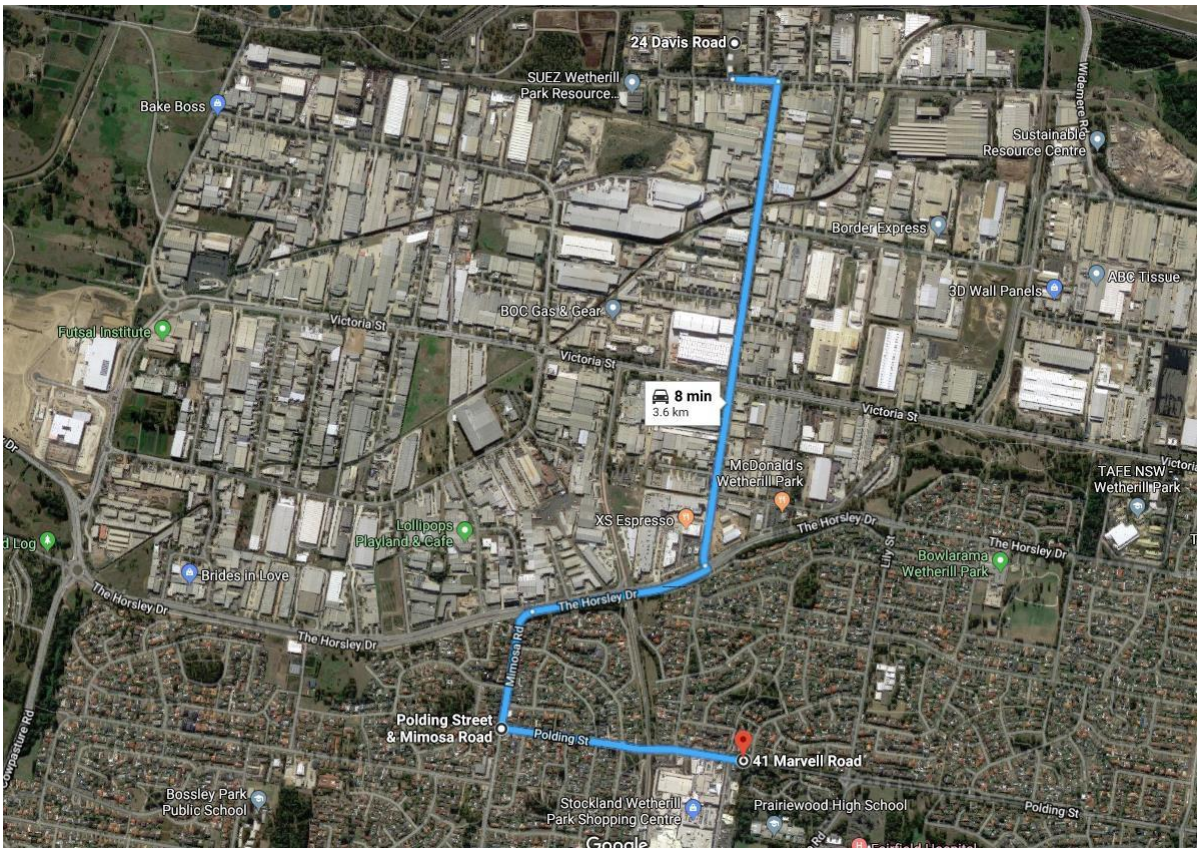
## Flood Response Summary

| WHEN | WHAT | BY WHO |
|---|---|---|
| Prior to Flooding | Assemble **Emergency Kit** | First Aid Officer |
| | Check Kit every six months | First Aid Officer |
| | Coordinate **Evacuation Drills** yearly and during Site Inductions | Chief Flood Warden |
| | Sign up and maintain **Early Warning Network** subscription | Chief Flood Warden |
| | Monitor weather situation at 4pm every afternoon | Chief Flood Warden |
| Evacuation | **Text / Email from Early Warning Network** with rainfall predicted to be greater than;<br>• 40.3mm over a period of 20 mins<br>• 88mm or more of rain over 2-hour period<br>• 135.6mm over a period of 6 hours | Chief Flood Warden |
| | Make decision to **Close** the facility and **Evacuate** | Chief Flood Warden |
| | **Sound Evacuation Tone** using Hand-held Loud Speaker and Chief Warden to Emergency Assembly Point | Chief Flood Warden |
| | Direct staff, contractors and visitors to **Emergency Assembly Point** | Deputy Flood Warden/Flood Wardens |
| | **Clear buildings** to ensure effective evacuation of the subject site. | Flood Wardens |
| | **Roll call** to make sure all staff, contractors and visitors are accounted for. | Chief Flood Warden |
| | **Leave signage** notifying any responders attending site that evacuation has been undertaken | Chief Flood Warden |
| | **Evacuate** to homes / accommodation | Chief Flood Warden |
| On-site Refuge | **Warning has been issued triggering evacuation, but rainfall has commenced.** | Chief Flood Warden |
| | **Sound Evacuation Tone** and Chief Flood Warden to the nominated **Emergency Assembly Point** | Chief Flood Warden |
| | Direct remaining staff, contractors and visitors to the nominated **Emergency Assembly Point** | Deputy Flood Warden/Flood Wardens |
| | **Roll Call**. Ensure everyone is accounted for. | Chief Flood Warden |
| | **Follow direction from Emergency Services** | All |
| | **Do not attempt to drive or walk through floodwaters. If stranded on-site and water inundates floor level, call 000 immediately.** | All |
| Once Risk has Passed / After a Flood | Check all services and structural stability of buildings. | Qualified persons |
| | Return to operation. | Chief warden |

## Key Personnel

| Person Organisation | Name | Number |
|---|---|---|
| | | |
| Chief Flood Warden | | |
| Deputy Flood Warden | | |
| First Aid Officer | | |
| Flood Warden 1 | | |
| Flood Warden 2 | | |
| | | |
| | | |
| SES | - | 132 500 |
| Police / Fire / Ambulance | - | 000 |

## Evacuation Routes



## Emergency Assembly Point / On-site Refuge