

Mr Stephen Dobbs  
Senior Planning Officer  
State Significant Acceleration  
Department of Planning and Environment  
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By email: [stephen.dobbs@dpie.nsw.gov.au](mailto:stephen.dobbs@dpie.nsw.gov.au)

Dear Mr Dobbs

Further to your request for further flood assessment of the Newcastle Grammar School – Park Campus (SSD-13895306) proposal. Water Floodplain and Coast officers have reviewed the response to submissions and provide the following information *without prejudice* for your consideration. (Please note that detailed comments are provided at Attachment A

**Recommendations:**

1. BCD recommends that an adequate FERP is developed by suitably qualified flood risk and emergency management consultant.
2. BCD advises that the FERP must provide clear, quantifiable triggers for each emergency management action.
3. BCD recommends that any approval includes a condition of consent that requires the Stage 1 and Stage 2 buildings to be certified by a structural engineer to be able to withstand the hydraulic forces of the PMF event.
4. BCD advises that rising egress must be available from all locations within the school grounds to the flood refuge. All egress routes must have sufficient capacity and be able to withstand PMF flood conditions.
5. BCD requests that the proponent provide evidence as to the measures taken to date to implement flood safety provisions in their existing FERP, including:
  - revision history of the 1988 FERP
  - documentation of the school's emergency management response during the June 2007, April 2015 and Feb 2022 floods.
  - history of flood evacuations drills

If you have any further questions about this issue, please contact Mr Neil Kelleher, Senior Team Leader – Water Floodplains and Coast, Hunter Central Coast Branch, Environment and Heritage Group, on 0243204206 or at [Neil.Kelleher@environment.nsw.gov.au](mailto:Neil.Kelleher@environment.nsw.gov.au).

Yours sincerely



Neil Kelleher  
**Senior Team Leader - Water Floodplains and Coast**  
**Hunter Central Coast – 13 May 2022**

### Newcastle Grammar School – Park Campus Stage 1

#### Detailed comments - Response to Submissions for City of Newcastle

#### Flooding and flood risk comments

##### 1. The amended Flood Emergency Response Plan (FERP) fails to adequately address risk to life

The FERP has not been prepared in accordance with current best practice flood emergency management. The planning proposal is seeking to significantly increase the number of school occupants on a flood prone site and if approved would increase the risk to life. BCD cannot support this proposal until it can be demonstrated that evacuation and shelter strategies during a major flood event are feasible.

**The FERP has not assessed the impacts of late or failed evacuations on the risk to life.** Students would be potentially left stranded on Corlette Street or in the Sandi Warren Centre, surrounded by rising, high hazard flood waters if the evacuation plan cannot be completed before the entire school is inundated. It is unlikely there would be enough time for the NSW SES to conduct rescue operations if the evacuation failed.

**The FERP has not assessed if there will be sufficient time available to complete the evacuation.** The NSW SES Timeline Evacuation Model (Oppen et al, 2009) is used by evacuation planners to estimate the time required and the time available for evacuation. And to determine if evacuation is possible and the required warning times and evacuation triggers.

The PMF hydrograph indicates there is 32 minutes from the start of the event till the entire school is inundated. It is unlikely that there will be enough time to organise and then load the buses to successfully evacuate the school occupants.

The evacuation planning should also include safety factors for the potential delay of busses due to availability or adverse traffic conditions

**The FERP should prioritise the most vulnerable for off-site evacuation.** In the likely event that insufficient busses can be sourced for the evacuation, then the most vulnerable should be evacuated first. The most vulnerable would include the mentally and physically disabled, those with high medical needs and the very young. Given the very short time available, the most vulnerable would need to be identified prior to the onset of flooding. This would logically need to occur during the annual review of the FERP.

**The amended FERP incorrectly states that the Bureau of Meteorology flood will provide a flood warning.** S3.2 of the FERP states that flood warnings are provided by the State Emergency Service (SES) and the Bureau of Meteorology (BoM). However, the BoM does not provide a flood warning service for Cottage Creek. The BOM typically only provides flood warnings services for major river systems as it is not possible to detect and give sufficient warning for small, ungauged catchments such as Cottage Creek.

BCD advises that the:

- BoM may issue a severe weather warning with the possibility of flash flooding depending on available data.
- City of Newcastle provides a free flash flood alert subscription service for the Cottage Creek catchment

**The FERP contains numerous omissions.** Omissions in the amended FERP include:

- The RTF states that the Kiss and Ride is not to be used during flood conditions. However, this is not included in the FERP.
- The FERP does not state where the plan is to be kept.

- Figures 3-6 shows hydrographs for various locations within the school. However, there is no accompanying map showing the hydrograph locations.
- The FERP does not have a communication plan, specifying messaging and how and when parents will be contacted.

**The FERP evacuation triggers are not informed by the proposed flood warning system.**

The RTS states that float triggers and connected alarms will be installed on-site. However, the FERP does not use the proposed flood warning system to trigger automatic alarms when critical flood heights are reached. Instead, the FERP relies on admin staff visually monitoring water levels and the rate of rise of flood waters between 2.2m and 2.5m AHD. If the admin staff miscalculate the rate of rise, then evacuation could be incorrectly delayed till flood levels reach 2.8m AHD. BCD further notes that:

- The architectural plans show that the admin staff will not have a direct view of the hockey fields or the on-site flood marker as they will be located on the ground floor of Building B.
- The current flood marker is located outside the current library / admin building, which will be demolished as part of the stage 1 works.

**The FERP does not include a schedule of essential flood evacuation safety measures.**

The annual review of the FERP should require an inspection of all essential flood evacuation safety measures to confirm that all measures have been maintained and are in working order.

The FERP should include a schedule of essential flood evacuation safety measures, which at a minimum must include:

- Quantity of drinking water, long life food and firefighting equipment to be stored in the flood refuge
- first aid kits
- Review of student records of medical needs and contact information
- Automatic flood warning system float triggers and alarms
- Emergency lighting and backup power requirements
- Evacuation direction signs
- Updating emergency contact numbers

**The amended FERP is internally inconsistent.** The amended FERP has numerous contradictory statements. Examples are provided in Table 3.

*Table 1 Contradictory Instructions in the amended FERP*

Instruction	Contradictory Instruction
S3.4 Evacuation must occur when flood levels reach 2.8m	S3.7.2: Evacuation must occur when flood levels reach 2.9m
S3.3: Appropriately trained staff members will manage the flood emergency response	S3.1: The school principal and deputy principal shall oversee enforcing the emergency flood management procedures.
S3.1 Occupants in the Union  St building will be relocated to the Hall in preparation to be evacuated when flood waters rise at a considerable rate and encroach into the playground (2.2m).	S3.4 If the flood levels rise from 2.2 to 2.5m between 15 and 20 min then Students/staff within the Union Street Building are to evacuate to the hall in preparation to evacuate the site

**Recommendation 1**

BCD recommends that an adequate FERP is developed by suitably qualified flood risk and emergency management consultant.

## 2.The FERP relies on ambiguous triggers

The FERP does not provide clear, unambiguous triggers for each emergency management response action. The current plan requires staff to make judgments, based on subjective instructions. Examples are provided in Table 2.

*Table 2 Examples of subjective statements in the amended FERP*

Subjective Instruction	BCD Comment
Where flood waters rise at a considerable rate and encroach into the playground occupants in the Union St building will be relocated to the Hall in preparation to be evacuated	This trigger requires admin staff to determine if the rate of rise is considerable.
Once a backwater lake develops directly across from the Park Campus on the National Park No. 4 Sports Ground, and is seen to rise and expand noticeably, students will be marshalled within their classrooms while the nominated staff monitor and assess the rise of floodwater	Admin staff are required to determine if flood waters are rising and expanding noticeably.
where there is insufficient time to marshal students and staff prior to evacuating	The person with the responsibility for determining if there is sufficient time available has not been nominated. The FERP has not provided an evacuation timeline, so there is no way for the decision maker to determine if there is sufficient time available.
In the event of severe weather warnings, flood watches and weather forecasts of heavy rain that may lead to flash flooding, the school should consider proactively encouraging students and staff not to attend the site	The FERP does not inform what weather conditions pose a risk to the school and closing the school every time there is a severe weather warning may not be practical.  The FERP should consider subscribing to an early warning networks provider (EWNs). EWNs monitor weather events 24x7 and send customised warnings of potential flooding events. EWNs alerts could provide actionable intelligence to the nominated school representative.

### Recommendation 2

BCD advises that the FERP must provide clear, quantifiable triggers for each emergency management action.

## 3.Shelter in place relies on the stability of the Union Street Building during extreme floods

The amended FERP states that a structural engineer will be required to certify that the existing building is able to withstand the floodwater forces imposed during the Probable Maximum Flood (PMF) event.

### Recommendation 3

BCD recommends that any approval includes a condition of consent that requires the Stage 1 and Stage 2 buildings to be certified by a structural engineer to be able to withstand the hydraulic forces of the PMF event.

## 4.The amended FERP does not provide safe egress to the on-site flood refuge

The RTS states that the proposed raised walkway is not included as part of the revised internal evacuation paths. And the most direct and elevated route is between the south-western stair well and the Sandi Warren Centre. However, the architectural plans show that there is no elevated walkway between the Union Street south west stairwell (RL 2.57m) and the Sandi Warren Centre (RL 3.3m). In the event that evacuation to on-site refuge is required, evacuees must traverse H3 hazard floodwaters to reach the flood refuge.

#### Recommendation 4

BCD advises that rising egress must be available from all locations within the school grounds to the flood refuge. All egress routes must have sufficient capacity and be able to withstand PMF flood conditions.

#### **5. The proponent has not provided documentation demonstrating compliance with the with flood safety provisions in their existing Flood Emergency Response Plan**

The proponent has not provided evidence of compliance with their existing FERP, as requested by BCD in its submission, dated 21/12/2021.

BCD also requests that the proponent provides documentation of their flood management on the 11 Feb 2022 where flood levels reached between 2.4 and 2.5 AHD.

*11/02/2022 Flooding at the site*







#### [Recommendation 6](#)

BCD requests that the proponent provide evidence as to the measures taken to date to implement flood safety provisions in their existing FERP, including:

- revision history of the 1988 FERP
- documentation of the school's emergency management response during the June 2007, April 2015 and Feb 2022 floods.
- history of flood evacuations drills