



22 April 2026

211227

Centurion Group
Level 26, 1 Bligh Street
Sydney, NSW 2000

SUMMITCARE SENIORS HOUSING JAMISTOWN, PENRITH

SSDA (SSD-68603709) - DPHI Request for Additional Information

TTW's responses to the Department of Planning, Housing and Infrastructure (DPHI)'s request for additional information on the Flood Impact and Risk Assessment (FIRA) and Flood Emergency Response Plan (FERP) for SummitCare Seniors Housing, Penrith (SSD-68603709) are provided below.

It should be noted that SummitCare Penrith is an existing 90+ bed Residential Aged Care Facility (RACF). The proposal reduces the number of RACF beds to a maximum of 6, representing a reduction in vulnerable occupants and an overall shift to a lower risk land use at the site.

Following a meeting with DPHI and CPHR on 13 April 2026, further modelling has been completed to determine the impact of more conservative climate change allowances on flood levels from local catchment sources in the 0.2% AEP event. This analysis is attached below.

Item	Comment	TTW Response
Department of Planning, Housing and Infrastructure – 17 March 2026		
1	The Flood Emergency Response Plan (FERP) indicates that in a local catchment probable maximum flood (PMF) event, flooding would reach the site within 15 minutes and inundate the habitable floor levels of the Residential Care Facility suites after one hour. The Department considers this timeframe insufficient to monitor site conditions, implement a shelter-in-place response, and relocate high-care residents to higher levels. The Department recommends that the design of the development be revised to ensure that the RCF suites are located above the PMF level. This may be achieved by relocating RCF beds to the first floor of the development.	Relocating RCF suites above the PMF level is not considered operationally feasible. This risk must be balanced against the more frequent, day-to-day need for high-care residents to be located on the more accessible ground floor, noting the PMF represents an extreme, very low-probability event. The facility must primarily function safely and effectively under normal conditions. Locating high-care residents at ground level ensures appropriate accessibility and care delivery, including during other emergency situations, including: • More efficient access to the ambulance bay when emergency care is required • Ground floor access is preferable for high-care residents in the event of a fire Emergency procedures will be in place to manage relocation of resident to higher levels in the unlikely event of a very rare local catchment flood. It is recommended that the elevators run on backup power so high-care individuals can be relocated to Level 1 during power outages (prior to above-floor inundation). This has been noted in TTW's updated FERP (refer to Section 3.2.3 in Revision 2).
2	The Flood Impact and Risk Assessment (FIRA) indicates that the basement crest is protected to the PMF level from local catchment flooding on Harris Street. However, as noted	As noted in Section 1.1 and 9.1.2 of TTW's FIRA, protecting the basement crest to the PMF level from local catchment flooding prevents ingress via the vehicular entry, removing the primary pathway for

	by CPHR, the Department questions whether the basement would remain free of flood waters on the basis that the building's ground-floor would be inundated during the PMF event, suggesting the basement would also be come inundated. In order for a shelter-in-place response strategy to be considered appropriate for the site, the Department requires that the design of the proposal and the Flood Impact Assessment (FIA) must be updated to ensure the basement is protected during the local catchment PMF event.	surface flows to enter the basement. It does not eradicate basement flooding in the critical duration (120-minute) PMF event, given that the ground floor is inundated. Despite this, the Council requirement for basement protection (1% AEP level + 300mm freeboard) and building floor level protection (1% AEP + 500mm) have been satisfied. In addition, under a shelter-in-place response, the basement would be isolated from the buildings (including closure of access points and lift override once the basement has been cleared). It is not relied upon as a safe refuge area and any residual risk of inundation does not affect occupant safety.
3	The FERP should provide greater detail on how the shelter-in-place process will be carried out, including: • how high care individuals will reasonably be able to be relocated to higher levels, and the timeframe required to do so • what facilities and essential services will be available in the refuge area on level 1 • in the event that shelter-in-place is undertaken, the anticipated next steps for affected residents once the flood levels recede.	The FERP has been updated to provide additional detail on the shelter-in-place procedures (refer to Revision 2 FERP, Section 3.2) including: Relocation of high-care residents: Relocation of the six high-care residents will be undertaken via staff-assisted vertical evacuation using lifts (supported by emergency backup power). All high-care residents are located within the RACF block within Building B, which has two lift cars on the ground floor level. In the unlikely event that the backup generator fails, alternative equipment should be available to assist staff with vertical evacuation via the stairs, including evacuation chairs (designed for upward evacuation), or a traditional patient stretcher. To improve lift accessibility for the RACF block, it is recommended that a double door is incorporated into the design along the eastern wall of the RACF area. This can be conditioned as part of the approval. Refer to Section 3.2.3 of TTW's Revision 2 FERP for more detail. Based on research by the Fire Protection Association Australia (Vertical Evacuation of Vulnerable Persons in Buildings, 2018), lift evacuation of a bed-bound person to Level 6 of a building would take approximately 1 minute per patient, based on: • Ascent time: 15 seconds per patient (lift speed of 1.5 m/s) • Waiting time before returning for next patient: 30 seconds • Descent time: 15 seconds In addition to the lift travel time, allowance must be made for staff coordination and patient preparation. On a conservative planning basis, an allowance of approximately 6 minutes per high-care resident has been adopted. Based on the above (and assuming preparation and transport of two high-care residents

	Based on the above, and assuming that preparation and transport of two high-care residents can occur concurrently, relocation to upper levels is expected to take up to 18 minutes. This represents a conservative upper-bound estimate, noting that preparatory activities would commence ahead of any formal evacuation, initially in response to severe weather warnings and subsequently intensified following the issuance of shelter-in-place directives.	occurs concurrently), relocation to Level 1 is expected to take up to 18 minutes. This is an upper-bound estimate, noting that preparatory activities should begin in advance of vertical evacuation being ordered, initially triggered by severe weather warnings and escalated upon the first shelter-in-place notification. As noted in Section 4.3.2 of the revised FERP, the trigger level for vertical evacuation during local catchment flooding is 27.50m AHD. In the critical duration 120-minute PMF event, there is 20 minutes between this trigger level being met and initial (shallow) inundation of the ground floor. This is sufficient time to allow for vertical evacuation of high-care residents via the lifts. <u>Refuge Area</u> The designated refuge areas are as follows: • Building A: the games room on Level 4. Other residents' rooms and circulation areas to be utilised as required. • Building B: void space above the foyer to be converted into a common room. Other residents' rooms and circulation areas to be utilised as required. • Building C: Other residents' rooms and circulation areas to be utilised as required. Emergency cupboard will be allocated in the detailed design stage. The above areas will include an emergency cupboard equipped with water, non-perishable food and some medical supplies. Other recommended supplies are outlined in Section 7.5 of the FERP ("Flood Emergency Kit"). It is recommended that allocation of the above common areas and provision of an emergency cupboard is imposed as a condition of consent. <u>Post-event Procedures:</u> Following recession of floodwaters, residents will either be returned to their rooms where safe to do so or temporarily relocated within unaffected areas of the facility. In the unlikely event that ground floor inundation has occurred, the site manager must: • Inspect the impacted areas • Make arrangements for cleaning and safe reoccupation • Coordinate with the appropriate services if external assistance is required. As with regional flooding, relocation of impacted residents to a sister facility may be required.
4	The FIA should be updated to detail whether the identified local and regional flood events are independent, and/ or the likelihood that the events could occur at the same time.	Local catchment flooding (Peach Tree Creek and Lower Surveyors Creek) and regional flooding from the Hawkesbury-Nepean River system are influenced by different hydrological processes and

		timescales. Local flooding is rapid and has a short duration, while regional flooding responds to prolonged rainfall over a much larger catchment. Given this, the likelihood of coincident peak conditions is very low, and joint probability is considered negligible. A conservative approach has been adopted in the assessment, assuming a concurrent 5% AEP level in the Nepean River for all local catchment events. This is consistent with the flood study approach. TTW's FIRA report has been updated to clarify this, refer to Revision 3 Section 5.1.
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Climate Change Sensitivity Testing

Following further feedback from CPHR in a meeting with DPHI, CPHR, Centurion Group and TTW on 13 March 2026, additional assessment of climate change has been undertaken for the 0.2% AEP (1-in-500-year ARI) event. This assessment focuses on flooding from local catchment sources, given the limited warning time associated with flash flood events, and the adoption of shelter-in-place as the appropriate emergency response strategy in this case. As noted in the FERP, the site is impacted by regional flooding in the 0.2% AEP event and would be pre-emptively evacuated as soon as NSW SES issue evacuation orders for the area, well in advance of inundation.

Table 1 provides an overview of several sensitivity tests to determine the impact of more conservative climate change allowances on flood levels in the local catchment 0.2% AEP event, and to review whether the site is likely to be inundated in this event across its lifespan. The reported flood level is taken from the sag point on McNaughton Street.

Two Shared Socio-economic Pathway (SSP) scenarios have been included in this assessment:

- 1) SSP3-7.0: a high reference scenario that reflects no additional climate policy and assumes CO₂ emissions will double by 2100, with warming of ~4°C.
- 2) SSP5-8.5: a very high 'fossil-fuelled development' scenario that assumes CO₂ emissions will triple by 2075, with warming of ~5°C by 2100.

The expected lifespan of the proposed SummitCare Penrith development is around 50 years, aligning with the projections for the year 2080. To provide a conservative estimate of climate change, projections have been tested up to 2100. The following observations have been made:

- In all climate change tests (including the worst-case SSP5-8.5 projections for 2100, which consider a rainfall intensity uplift of 71%), the buildings are set a minimum of 160mm above the 0.2% AEP flood level from local overland sources. Flood depths and levels under this scenario are presented in Figure 1.
- The magnitude of rainfall uplift adopted in the upper bound sensitivity testing significantly exceeds typical near-term and mid-century climate change allowances and is considered highly conservative for the expected design life of the development.
- When compared to standard design storm scaling, the 71% uplift represents a substantial increase in rainfall intensity and can be considered broadly representative of conditions beyond the 0.2% AEP event, providing a robust stress test of the site's flood resilience to extreme local catchment flooding.
- The results indicate that even under these highly conservative assumptions, the threshold for above-floor inundation from local overland flow is not reached, demonstrating a low likelihood of building inundation from local catchment flooding over the life of the development.

Table 1: Overview of climate change sensitivity testing on 0.2% AEP flood levels at the site under local catchment flooding

Test	Climate Change Scenario		Flood Level	Flood Level Increase	Building Clearance
	SSP Projection and Year	Uplift	(m AHD)	(mm)	
Current 0.2% AEP Event	—	—	27.420	—	380
TEST 1	SSP3-7.0 projections for 2080	+42%	27.570	+150	230
TEST 2	SSP5-8.5 projections for 2080	+52%	27.590	+170	210
TEST 3	SSP5-8.5 projections for 2090	+64%	27.625	+205	175
TEST 4	SSP5-8.5 projections for 2100	+71%	27.640	+220	160

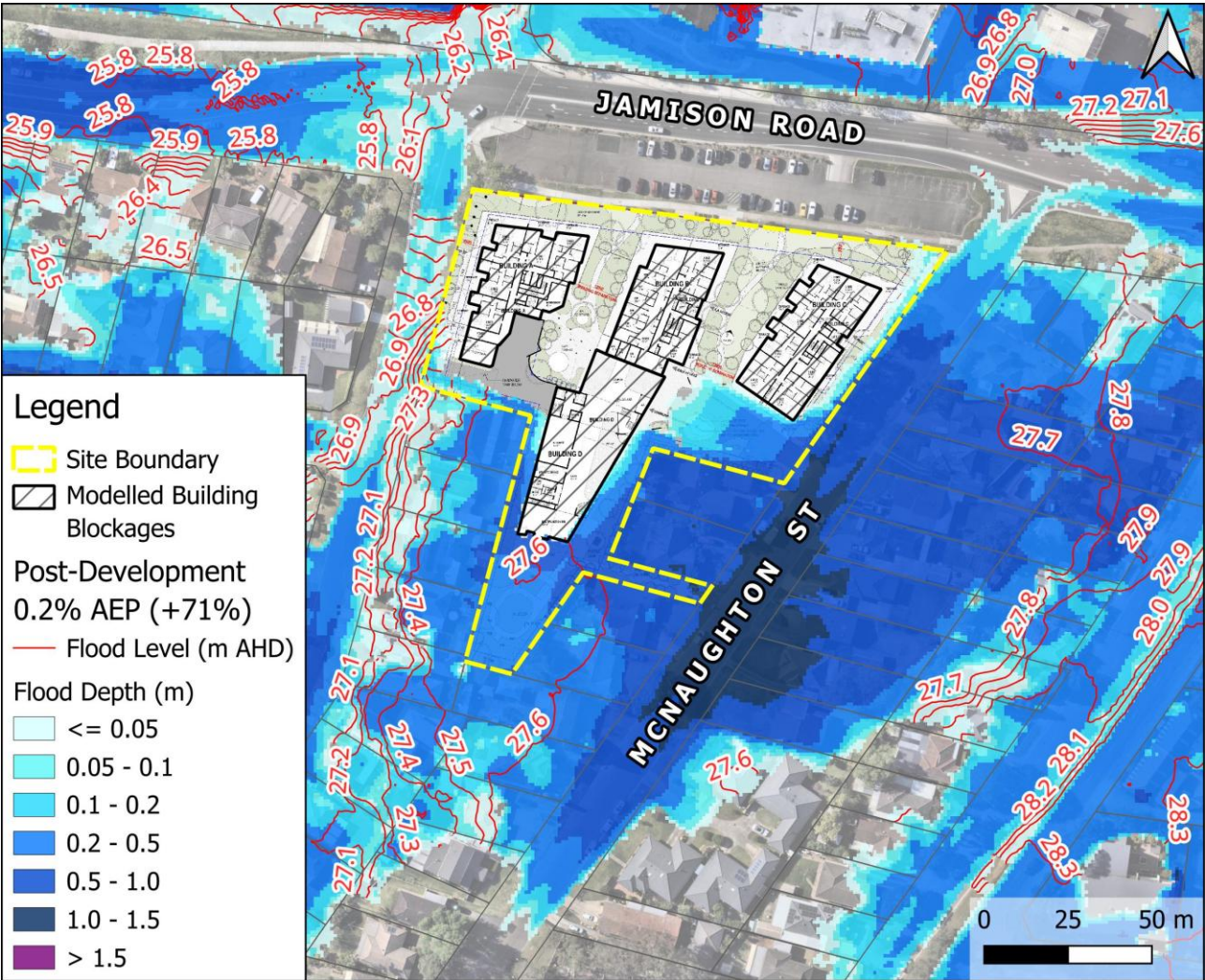


Figure 1: 0.2% AEP Event (SSP5-8.5 Projections by 2100 - 71% Uplift) – Flood Depths and Levels

Summary

Regional Flooding

- The proposed buildings are located well above the 1% AEP flood extent from Hawkesbury-Nepean flooding, with 1350mm clearance above the baseline level, and 500mm clearance above the projected near-term climate change (2030) level, providing an appropriate margin of safety for the design life of the development.
- Regional flooding of the Hawkesbury-Nepean system occurs at a very large scale, with widespread inundation of the surrounding floodplain and road network in rarer events. The proposed buildings are only affected by above-floor inundation in events with a magnitude above the 0.5% AEP.
- Regional flooding is slow-moving and provides significant advance warning, allowing sufficient time for implementation of NSW SES evacuation procedures. Evacuation triggers for the area occur well before floodwaters reach the site.
- The proposed development represents an overall reduction in flood risk profile, with a significant decrease in high-care (non-ambulatory) residents compared to the existing facility, thereby reducing reliance on assisted evacuation.
- Early evacuation is the appropriate and established risk management response for regional flooding, consistent with SES guidance and floodplain management practice across the Hawkesbury-Nepean Valley.

Local Overland Flooding

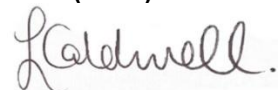
- Local (flash) flooding at the site is short duration with limited warning time and is managed through a combination of targeted design measures and emergency response measures.
- The development has been designed such that no above-floor inundation occurs in events up to and including the 0.2% AEP event, even when applying an extreme climate change uplift of +71% (SSP5-8.5, 2100), with buildings maintaining a minimum freeboard of 160mm above the surrounding flood level.
- This represents a highly conservative upper-bound scenario, exceeding typical climate change allowances for the expected design life, and demonstrates that the site is resilient to very rare local flood events.
- Notably, the site is not inundated during the short-duration 15-minute PMF event, indicating that conditions leading to building inundation are associated only with longer-duration, extreme rainfall scenarios.
- The 120-minute PMF storm event represents an extreme, theoretical upper-bound flood event, with a magnitude well beyond events typically expected over the design life of the development. Achieving full immunity to the local catchment PMF level through built form would require significant alteration to site levels and access arrangements, which would introduce substantial constraints on site grading, access and DDA compliance.

Conclusion

- The development remains free from above-floor inundation in all relevant local flood design events and the 1% AEP regional flood event, with additional conservatism applied through climate change sensitivity testing.
- Residual risks associated with extremely rare events are appropriately managed through established and well-defined emergency response procedures.

Should you require anything further please contact the undersigned.

TTW (NSW) PTY LTD



LAURA CALDWELL
Civil Flood Modeller